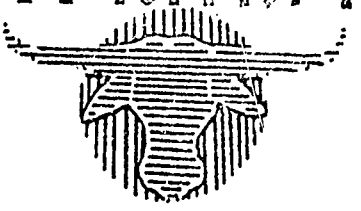
PH-AAA-280

PROGRAM
ON THE PRODUCTION OF
ANIMAL PROTEIN FOODS
FY 1971-1974



THE PROGRAM FOR
CAGAYAN

Implementing details

BUREAU OF ANIMAL INDUSTI
Manila, Philippines

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PROGRAM ON THE PRODUCTION OF ANIMAL PROTEIN FOODS, FY 1971 - 1974

THE PROGRAM FOR CAGAYAN

IMPLEMENTING DETAILS

I. Introduction

This volume sets out the implementing details of the Four-Year (FY 1971 - 1974) Program on the Production of Animal Protein Foods, with special reference to the program for the province of Cagayan.

To insure its successful implementation, it is important to set specific guidelines and equally important to spell out the specific functions and responsibilities of the key officials and personnel involved. All those concerned need to know their specific jurisdiction, be it national, regional, provincial or a specific sector. But, above all, it is most important that each of those who will play a vital role in this program knows exactly the specific target assigned to him, that he knows its importance in relation to the national goal, the attainment of which this program seeks to achieve.

II. The Four-Year Development Plan for the Philippines, FY 1971-1974

1. Basic Targets -

The basic target of the Four-Year Plan is an increase in Gross National Product (GNP) from its FY 1969 level of ₱27,783 million to ₱36,308 million in FY 1974, bothfigures at constant

FY 1967 prices. This represents an average annual growth rate of 5.5 percent and a growth in real per capita income of 2 percent annually. The growth of the economy is expected to accelerate, reaching 6.5 percent in FY 1974.

B. The Four-Year Agricultural Development Program -

The main production sectors that will receive government support under the Four-Year Development Plan for the Philippines are agriculture and industry.

The general objectives of the agriculture sector are: 1) continued expansion of rice production; 2) bridging the protein gap; and 3) expansion of exports.

Its target is to increase output by 6.25 percent annually to maintain the share of agriculture at approximately 34 percent of Net Domestic Product.

The major area of agricultural development are: 1) crop production, 2) livestock; 3) fishery and 4) forest products.

Crop production in this context includes both food and commercial crops, the most important in the former being 1) rice, 2) corn and feedgrains, 3) livestock and 4) fishery.

The target for food crops is to raise the sufficiency ratio (the ratio of production to per capita consumption) from around 85 percent in 1969 to 95 percent by 1974.

In terms of physical targets, the following are the rate of growth during the plan period: 5.5 percent for crop

production, 7.0 percent for meat production and 5.8 percent for fish production.

1. Program Implementation Organization of the Food Programs -

As shown in Chart I, cereals, corn and feedgrains are grouped together, livestock and fishery are taken separately.

The National Food and Agriculture Council (NFAC) headed by Vice-President and Agriculture Secretary Fernando Lopez as Chairman and Undersecretary Arturo R. Tanco, Jr. as Presidential Action Officer, is the overall coordinator of the food programs. Each program is placed directly under an Action Officer.

III. The Four-Year Program on the Production of Animal Protein Foods -

This is one of the most vital phases of our programs in the agricultural sector. The 1968 breakthrough in rice production saw the need to complement it with a program designed to bridge the animal protein gap.

The production targets of this program are set in Appendices 1, 2, 3, 4, 5 and 6, pages 81 to 87 of the Program on the Production of Animal Protein Foods, FY 1971-1974.

A. Functions and Responsibilities -

Enumerated hereunder are the specific duties and responsibilities of the key officials and personnel directly involved in the implementation of this program:

1. Action Officer:

a) The Action Officer for this program (Chart 1.) shall be assisted by an assistant to be designated, the chiefs of divisions and the Plans and Programs Staff.

b) It shall be the primary responsibility of the Action Officer to oversee and coordinate the various activities with a view to achieve the national targets of the program.

c) Dr. Edwin Wagelie of the NABC will serve as Action Officer of the A.I. program directly under the Action Officer. The Action Officer for A.I. shall be assisted by eight A.I. supervisors, who shall be responsible for the technical supervision over the A.B. technicians in his region.

d) Dr. Emil Q. Javier of the UPCA shall serve as Action Officer of the forage development program, and will work directly under the Action Officer. The Action Officer for forage development shall be assisted by Dr. Andres T. Peros, Assistant Chief of the Livestock and Poultry Propagation Division, the Messrs. Amado Abordo and Nolasco Bueta, also of the same division.

2. Regional Director:

a) The respective regional director of the ten (10) BAI regional offices shall be directly responsible to

the Action Officer for the smooth and successful implementation of the program in his region (See Chart 1.)

b) It shall be his primary responsibility to oversee implementation of the program and to coordinate the activities of the various field units in the region.

c) For purposes of facilitating communication between Manila and the provincial project directors, all communications, circulars, memoranda, orders, etc. shall be sent directly to the provincial project directors. The regional director concerned shall be furnished copies thereof for follow-up.

d) For the same reason, reports from the various field units in the respective provinces will be collected by the provincial project directors and sent directly to Manila, copies thereof furnished the regional director concerned for compilation of his staff, to keep him posted on the operations and accomplishments of the various field units in the region, with the end in view of being able to direct their activities for purposes of attaining the specific targets of the program in his region.

e) It shall be the primary responsibility of the respective regional directors to apprise the Action Officer on the progress of the work in their region.

3. Supervising Field Veterinarian -

a) Assist the Regional Director in the administrative supervision of provincial offices within the region assigned to him.

b) Assist the Regional Director on the coordination of all activities as called for by the program specifically assigned to him.

c) Report and appraise the Regional Director of the problems encountered in the provinces within his jurisdiction and the action if any to solve the problems.

d) Assist in the solution of problems encountered in relation to implementation of the program.

e) Supervise the consolidation of reports submitted by the Provincial Project Directors.

f) May act for or in the absence of the Regional Director.

4. Artificial Breeding Supervisor -

a) -To assist the A.I. Action Officer in the implementation of the artificial breeding program.

b) To coordinate closely with the Regional Director in the allocation of artificial breeding equipment and supplies, including breeding centers and stations involved.

c) To assist and coordinate with other government and private artificial breeding projects.

d) Recommend, program and conduct training in artificial breeding.

e) Recommend a program of artificial insemination activities within the region.

f) Coordinate with the Regional Directors in the proper implementation of the artificial breeding program.

g) Select sires for artificial breeding purposes.

h) Supervise the training of sires for artificial breeding purposes.

i) To examine and evaluate the quality of semen of breeding

sires in the different artificial breeding centers and stations.

j) To evaluate the breeding efficiency of breeding sires in the different artificial breeding centers and stations.

k) To evaluate the progress of the artificial breeding activities in the region.

l) To conduct research or supervise researches conducted by the artificial breeding technicians of the Regional Center.

CHART I - PROGRAM IMPLEMENTATION ORGANIZATION SET-UP FOR THE FOUR-YEAR AGRICULTURAL DEVELOPMENT FOOD PROGRAMS, FY 1971 - 1974

(National Food and Agriculture Council (NFAC)

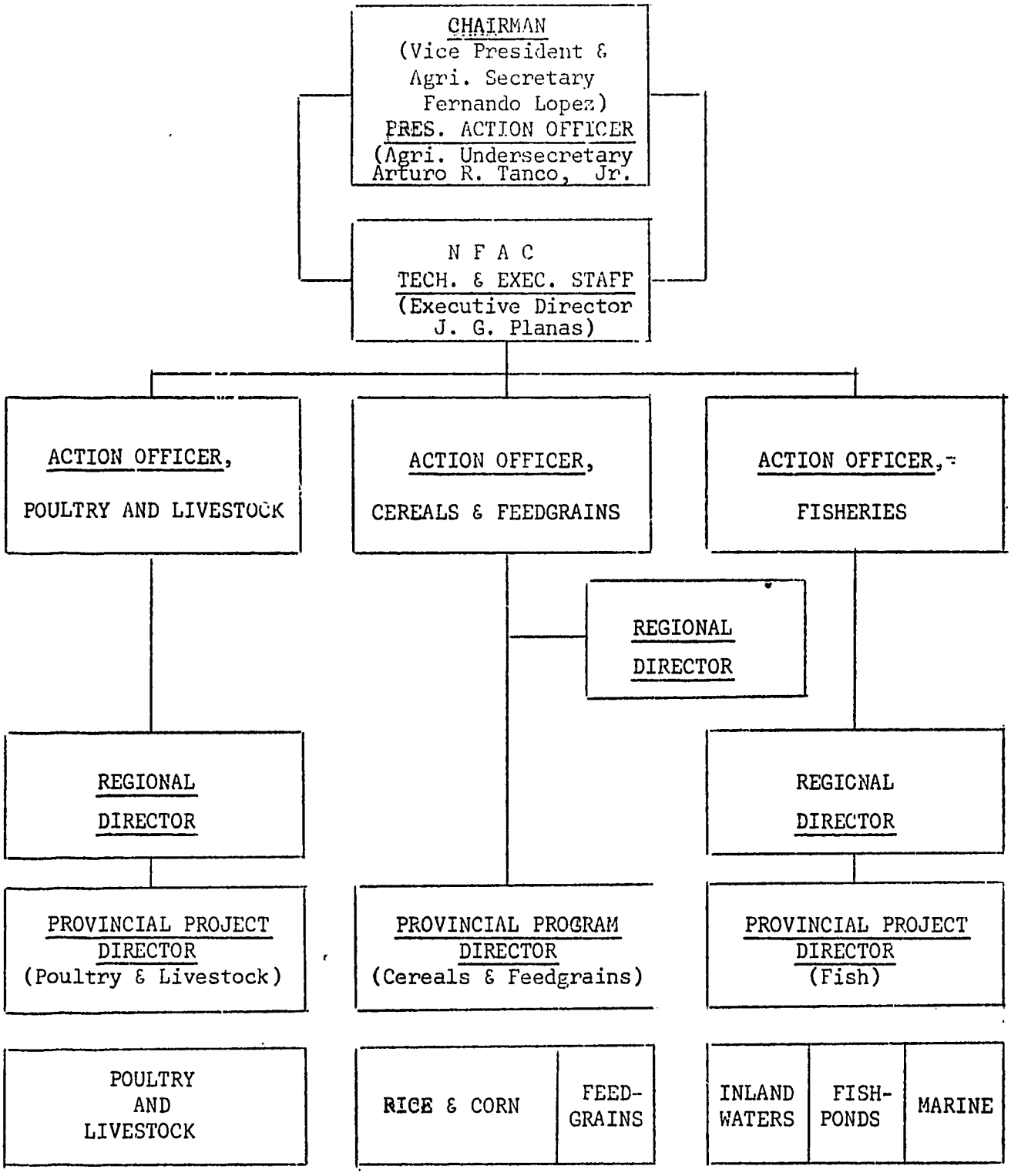
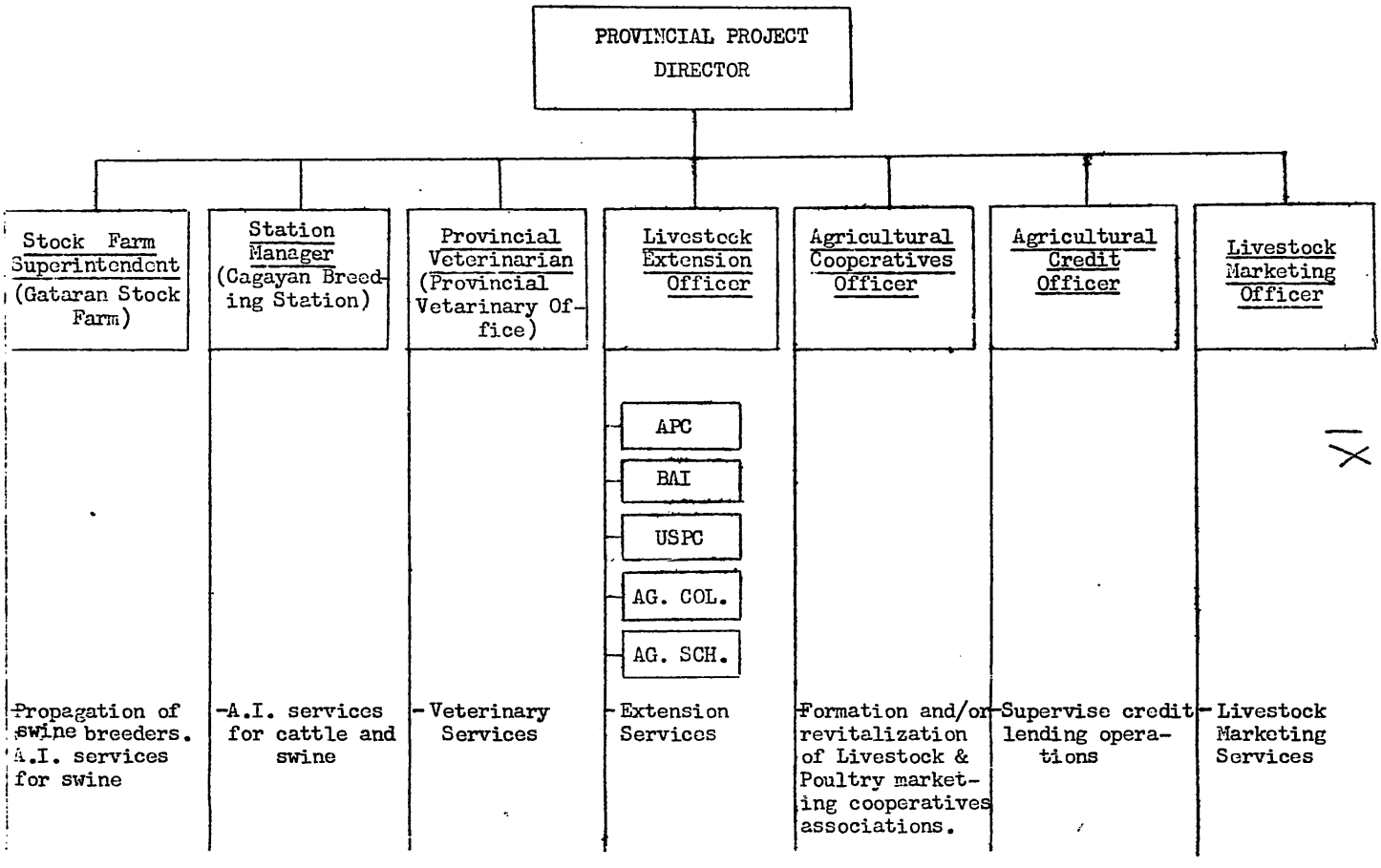


CHART 2. - MEAT AND EGG PROGRAM IMPLEMENTATION SET-UP FOR CAGAYAN



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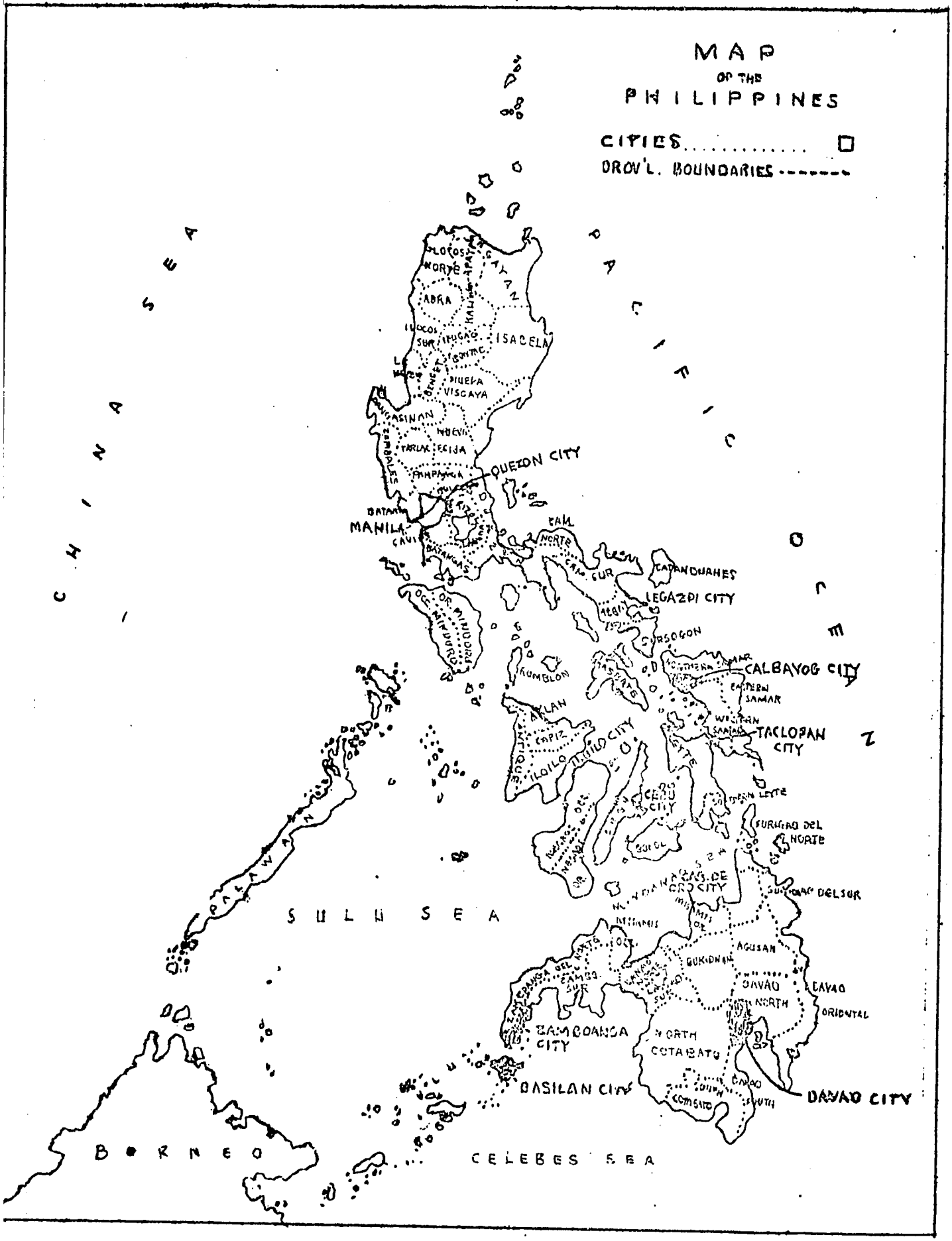
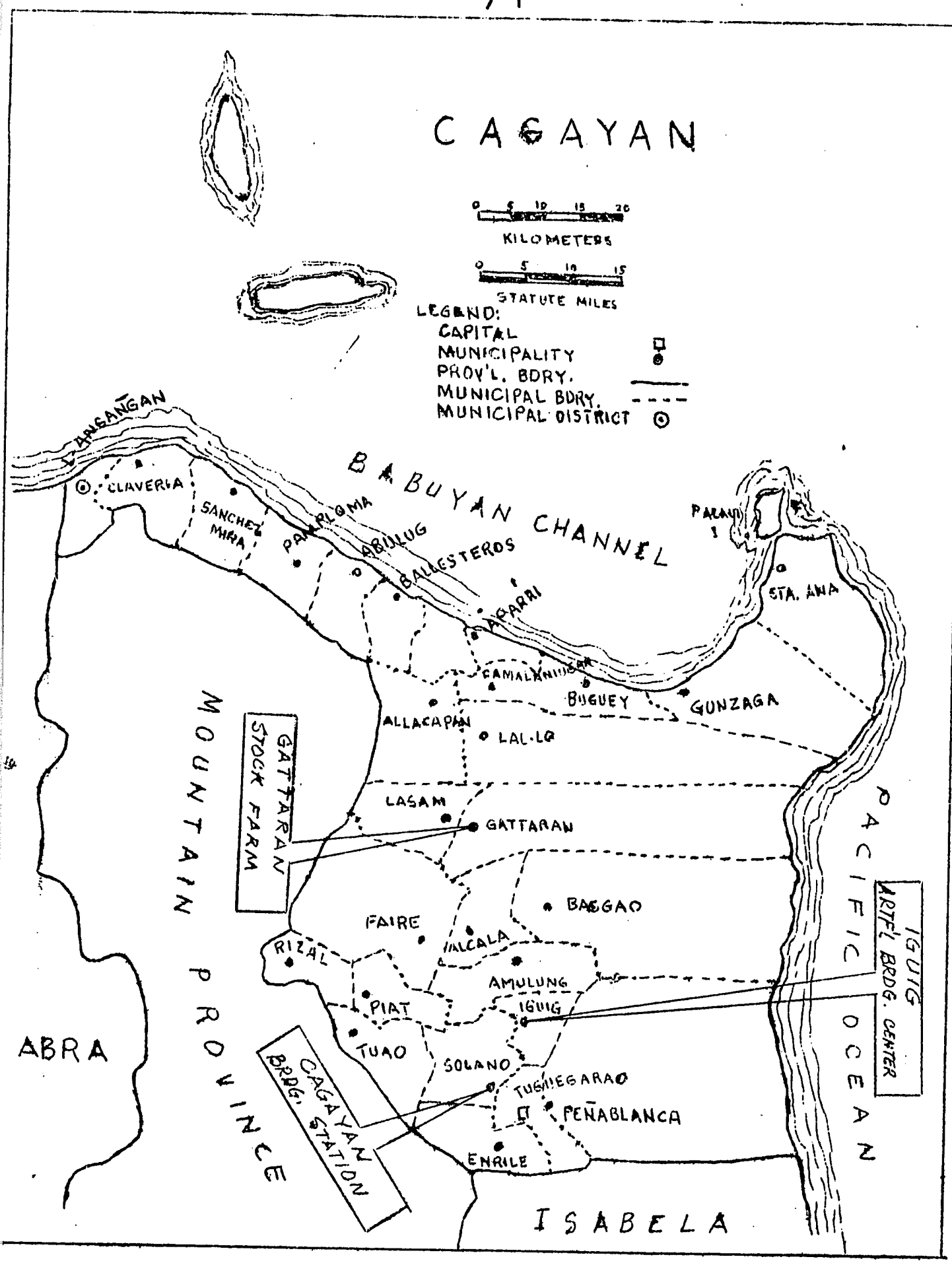

MAP
OF THE
PHILIPPINES
CITIES
PROV'L. BOUNDARIES
CHINA SEA
PACIFIC OCEAN
SULU SEA
CELEBES SEA
BORNEO
PALAWAN
ILOCOS NORTE
ABRA
ILOCOS SUR
APAYAO
KALINGA
ISABELA
BENGUET
MT. PROV.
NUEVA VIZCAYA
QUIRINO
PANGASINAN
NUEVA ECIJA
TARLAC
ZAMBALES
PAMPANGA
QUEZON CITY
BATAAN
MANILA
CAVITE
BULACAN
RIZAL
CAM. NORTE
CAM. SUR
CATANDUANES
LEGAZPI CITY
ALBAY
SORSOGON
MASBATE
ORIENTAL MINDORO
OCCIDENTAL MINDORO
ROMBLON
CALBAYOG CITY
NORTHERN SAMAR
EASTERN SAMAR
WESTERN SAMAR
TACLOBAN CITY
AKLAN
CAPIZ
ILOILO
ILOILO CITY
LEYTE
CEBU
CEBU CITY
BOHOL
SIQUIJOR
NEGROS OCCIDENTAL
NEGROS ORIENTAL
SURIGAO DEL NORTE
SURIGAO DEL SUR
BAIS CITY
DUMAGUETE CITY
ZAMBOANGA DEL NORTE
ZAMBOANGA DEL SUR
ZAMBOANGA CITY
AGUSAN
BUKIDNON
DAVAO
DAVAO NORTH
DAVAO ORIENTAL
NORTH COTABATO
DAVAO SOUTH
COMISTO
BASILAN CITY
DAVAO CITY


CAGAYAN
0 5 10 15 20
KILOMETERS
0 5 10 15
STATUTE MILES
LEGEND:
CAPITAL
MUNICIPALITY
PROV'L. BDRY.
MUNICIPAL BDRY.
MUNICIPAL DISTRICT
APPARI
BABUYAN CHANNEL
CLAVERIA
SANCHEZ MIRA
PAMPLONA
ABULUG
BALLESTEROS
PARAN
STA. ANA
CAMALANIUGAN
BUGUEY
GUNZAGA
ALLACAPAN
LAL-LO
LASAM
GATTARAN
GATTARAN STOCK FARM
BAGGAO
FAIRE
RIZAL
ALCALA
AMULUNG
IGUIG
PIAT
TUAO
SOLANO
TUGUEGARAO
PEÑABLANCA
ENRILE
CAGAYAN BRDG. STATION
IGUIG ARTF'L BRDG. CENTER
MOUNTAIN PROVINCE
ABRA
ISABELA
PACIFIC OCEAN

THE PROVINCE OF CAGAYAN

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I. Basic Information

Cagayan province is one of the provinces included in Region II, Bureau of Animal Industry, with regional office in Tuguegarao.

DCI Trade Winds, Vol. 1, Nov. 4, 1970 reported the 1970 population of Cagayan as 580,810.

The major products of Cagayan are rice, corn and root crops; livestock is only secondary. The province has an estimated area of 900,267.0 hectares, of which 154,524.1 hectares were under cultivation. (See Agriculture Census of the Philippines, 1960.)

As of January, 1969, there were 33 pasture permits, as per record of the Bureau of Forestry, covering 5,143.52 hectares and 17 pasture leases covering 10,800.0 hectares, or a total of 15,943.52 hectares. This represents 1.77 percent of the total land area of the province.

The livestock survey conducted by the Bureau of Animal Industry in 1968 showed that there were five (5) semi-commercial hog raisers with a total population of 106 head and two (2) organized cattle ranchers with a total population of 170 head.

The province of Cagayan has two (2) types of climate. On the western part, the climate falls under type III, with seasons very pronounced and relatively dry from November to April and wet during the rest of the year. The average annual temperature is 27.2°C; average annual rainfall, 77.26 inches and a relative humidity of 80 percent.

On the eastern part, the climate falls under type IV, with rainfall more or less evenly distributed throughout the year. The average annual temperature is 26.8°C; average rainfall, 101.84 inches, with a relative humidity of 82 percent. The exposure of the province to typhoon is 32 percent on the western part, and 33 percent on the eastern part.

THE PROGRAM FOR THE PROVINCE OF CAGAYAN

I. GOALS, POLICIES AND TARGETS

The national goals, policies,and targets of this Program are as outlined in the Program on the Production of Animal Protein Foods, FY 1971-74.

A. The National Targets -

The national targets of this Program for the next four years are as follows:

Table 1. - The national targets for meat and eggs, FY 1971 - 1974 (in thousand metric tons) -

FOOD ITEMS	1968	1970 - 1971	1971 - 1972	1972 - 1973	1973 - 1974	Average Growth Rate Required, %
MEAT 1/	562.79	629.12	676.63	723.53	783.79	7.6
a. Poultry	88.37 (73.64	88.69 (73.90)	99.53 (82.90)	107.04 (89.20)	112.15 (93.50)	8.2
b. Pork	335.53 (7.44)	391.36 (8.68)	422.67 (9.38)	456.48 (10.13)	493.00 (10.94)	8.0
c. Carabao	85.05 (0.481)	91.28 (0.516)	94.56 (0.535)	97.98 (0.554)	111.50 (0.631)	6.9
d. Beef	34.72 (0.235)	37.27 (0.252)	38.61 (0.262)	40.00 (0.271)	44.32 (0.300)	6.0
e. Other Meats	19.12	20.52	21.26	22.03	22.82	3.6
EGGS	95.83	103.67	112.63	123.88	128.06	7.3

Bracketed num ers indicate corresponding head equivalent in millions.

1/ - Dressed weights: Pork - 45.06 kgs. Carabao - 176.58 kgs.
Beef - 147.35 kgs. Chickens - 1.20 kgs.

B. The Meat and Egg Production Targets for Cagayan, FY 1971 -

For FY 1971, the province of Cagayan under the program is expected to produce 2.58 percent of the national target for meat and 2.03 percent of the national target for eggs. In figures, this represents 16,262 metric tons of meat and 2,105 metric tons of eggs with the following breakdown: (See Appendix 1 for the breakdown of the meat targets for Cagayan by municipality.)

Table 2. - Meat Production Target for Cagayan, FY 1971 -

Kind of meat	Metric tons	% to provincial target
Poultry	1,800	11.07
Pork	10,057	61.84
Carabeef	3,788	23.39
Beef	380	2.34
Other meat	237	1.46

The expected production in eggs in Cagayan for the same period is 2,105 metric tons. (See Appendix 2. - Egg Production Target for Cagayan, FY 1971 by municipality.)

C. Animal Population of Cagayan -

Using the 1960 animal census as benchmark, the province of Cagayan has the following projected animal population, 1970. (See Appendix 3.)

Table 3. - Projected Animal Population in Cagayan, FY 1970 -

Livestock	Head
Cattle	21,828
Carabao	197,125
Swine	285,013
Horse	11,949
Goat	11,415

Poultry	Head
Chicken	1,929,109
Others	48,390

II. STRATEGY TO ACHIEVE THE GOALS AND TARGETS

To achieve the goals and targets of the program, a number of support services in aid to production and marketing shall be made available to the animal industry.

In Cagayan, two principal support services shall be available, namely - (1) veterinary and (2) extension. Other services like marketing and credit shall be worked out.

A. Veterinary Services -

Veterinary (or animal health) services, namely - (1) vaccination and/or immunization, (2) diagnostic test and/or examination, (3) treatment and (4) quarantine and/or inspection shall, under this program, constitute as the principal safeguard to the health of the animals and indirectly that of the people. This specific responsibility is assigned to the provincial veterinary office and the provincial veterinarian is principally held responsible.

To cope up with this delicate responsibility, the veterinary services shall be geared towards mass vaccination and/or immunization of animals to effect considerable reduction of losses, resulting from high mortality rate. The veterinary services program shall endeavor towards effecting a gradual shifting of the burden from the government to the private sector, with respect to the vaccination or immunization of animals.

To achieve this objective, the personnel of the provincial veterinary office will undertake, in addition to their principal activities, veterinary extension service to the extent of one-fourth man-year every year. Veterinary extension, however, will

be the principal responsibility of the Livestock Extension Officer in the province.

The minimum target in veterinary services for every livestock inspector will not be less than 2,000 animal units a year. When this refers to cattle, carabao or horse, 1 head is equivalent to 1 stock unit. For hog, 5 head is the equivalent of 1 stock unit; for poultry, the equivalent of 1 stock unit is 100 head. It is expected that the actual accomplishments will far exceed the minimum work load, which could easily be met in just one big poultry, piggery or cattle project. In other words, the minimum target (or work load) for every livestock inspector may be the exception. Reports of accomplishments in the previous years show that many livestock inspectors are hitting at over 5,000 animal units.

The available manpower for the provincial veterinary office in Cagayan consists of -

Provincial Veterinarian - - - - - - -	1
Livestock Inspector - - - - - - - - -	15

The targets assigned to this office in terms of veterinary services are listed as follows:

Table 4. - Veterinary Services Targets for Cagayan, FY 1971 -

(a) Vaccination

Kind of animal	Head
Carabao	27,427
Cattle	6,345
Swine	12,649
Chicken	935,344

(b) Diagnostic test/examination for parasites

Kind of animal	Head
Carabao	130
Cattle	573
Swine	9,680
Chicken	54,400

(c) Treatment

Kind of animal	Head
Carabao	1,112
Cattle	237
Swine	2,570
Chicken	60,900

(d) Quarantine/inspection

Kind of animal	Head
Carabao	2,769
Cattle	339
Swine	12,570
Chicken	40,600

B. Livestock Extension Services -

The breakthrough in rice production two years ago saw the vital role of extension service in the green revolution. Thus, extension service constitutes as one of the major tools of this program to tackle the educational phase.

In this respect, the program will draw support principally from the Agricultural Productivity Commission and the U.S. Peace Corps, and from other agencies like the BAEcon, ACA, BVE, PACD, ACAP, PRRM and the Agricultural Schools and Colleges, which may be doing some kind of livestock extension.

The primary objective of the livestock extension service in relation to the four-year program is to diffuse new technologies,

techniques, systems, or methods of production, procurement, processing, distribution, financing and so forth to animal raisers, to assist them to produce more meat and more eggs at cheaper cost but with more profits.

The manpower available for the livestock extension program in Cagayan consists of 8 technicians (BAI - 5, APC - 3).

The livestock extension program shall be focused on the following areas, namely - (1) veterinary (or animal health), (2) animal husbandry, (3) forage and pasture improvement, (4) credit financing, (5) marketing, (6) collection of vital statistics, and (7) business management. The objectives of the extension program in each of these areas are listed as follows:

1. Veterinary (or animal health) - On animal health, the direction shall be towards educating the animal raisers on the importance of vaccination and immunization. This is in support of the program of the provincial veterinary office to intensify veterinary services in the province, aimed at reducing the enormous losses due to diseases and parasites. (See duties of the livestock extension technicians on this area.)

2. Animal husbandry - It is a fact that the level of animal husbandry in the rural areas, especially among the average animal raisers, is generally low. On the other hand, the level of animal husbandry in commercial projects capitalized at millions of pesos, is nearly as high as those in foreign countries where the animal industry is highly progressive. This situation calls for a radical action.

   The principal objective therefore of the extension program on the area of animal husbandry is the promotion of artificial insemination, better breeding, better nutrition

and better management. Extension should be directed towards the multiplication of high-producing, early maturing and fast-growing birds and animals.

With this program, eight (8) swine progeny testing centers are established in strategic places in the country. (See duties of livestock extension technicians on this area.)

3. Forage and pasture improvement - If researches at the Dairy Training and Research Institute in Los Baños, Laguna on forage and pastures is any indication, it is safe to state that the prospects of forage and pasture development in the Philippines is as good if not better than what our close neighbors could have. The research at DTRI showed that we could produce here higher pasture yield in forage and pastures than they could in New Zealand.

To improve animal production and effect take-off from the present level of production, the new technologies of forage and pasture improvement should now be introduced to the average animal raisers.

Along this line, two (2) legume seed production stations and ten (10) pasture grass multiplication centers are established with this program in selected provinces. Livestock raisers have shown interest in forage and pasture production, however, the lack of available planting materials is an important problem. With the establishment of such stations and centers, forage and pasture planting materials shall become available even for overseeding large areas of grasslands with legumes.

The livestock extension technicians shall play a vital role in the promotion of this phase of the program. (See duties of the extension technicians on this area.)

4. Credit financing - Credit facilities for livestock and poultry production are, in general, lacking. According to the 1968 report of the Central Bank, only P378,146,000 (or 96.95 percent) of a total of P390,048,766 given out as loans that year by 409 rural banks spread throughout the country, was given out as agricultural loans.

The private development banks, on the other hand, granted during the year ending December 31, 1969 the amount of P22,178,892. Of this amount, P5,038,561 (or 22.72 percent) was given as loans to poultry and piggery producers: P154,720 (or 0.7 percent) was given as loans to cattle and dairy producers.

On the other hand, livestock and poultry producers have been complaining of tight credit for animal production. If this is any indication, it is evident that loans given to animal raisers are not properly structured to meet the needs of the country.

The objective therefore of the livestock extension program would be to bring together the animal raiser and the credit lender so that they can work out a loaning program structured according to the needs of the industry in a province or locality in support of a planned growth rate or target in meat or egg production. (See duties of extension technicians on this area.)

5. Marketing - The rice breakthrough in 1968 took the country by surprise; little did the planner and the producers realize that marketing, including storage, transport and processing, is as important as production. So that it is feared today that unless these services are provided for, rice self-sufficiency may not stay very long in this country. To insure success in any agricultural program, production ought to be programmed in an agribusiness concept.

The direction therefore in marketing extension is towards the improvement of the existing marketing system, which warrants certain radical change. (See duties of the extension technicians on this area.)

6. Collection and dissemination of vital information - The lack of basic information constitutes an important problem in planning and programming. This basic problem has greatly hampered the progress of animal production. The ordinary animal producer does not know how much it costs to produce a kilo of beef, or pork, or a piece of egg. Rarely, does he know whether he is making profit or incurring loss in his cattle, hog or egg project, and how much profit (or loss) he is making or incurring.

   The primary direction therefore for the extension service on this area is towards the collection of basic data in the frontiers of production. (See duties of extension technicians on this area.)

7. Business management - The average poultry, or swine, or cattle operator in the Philippines is essentially not a business entrepreneur. In most probability, he just stumbled into the business by chance. If he were a rich man who stumbled into the business, of course, he could hire technocrats to run the business for him. But the ordinary animal raisers has nobody to run the business for him. For years, he might have been struggling to improve his business, but finds himself in the same plight. This is the typical situation where the average animal raiser finds himself in. The direction therefore of the livestock extension service along this area should be to introduce the concept of agribusiness into the farm operations. (See duties of livestock extension technicians on this area.)

C. Credit Facilities -

The whole network of government lending institutions are committed to support this NFAC program. All the government agencies sitting as members of the Council are behind this program. Included as council members are government financing institutions like the DBP, DRB-CB, ACA and PNB.

In Cagayan, there are 5 rural banks, the PNB and the DBP that could be tapped for credit facilities. (See Appendix 6. - List of banks in Cagayan.)

The livestock extension technicians assigned to the province shall coordinate very closely with these banks to assist poultry and livestock producers obtain needed credits.

D. Breeder Stock -

To a limited extent, breeder stock shall continue to be provided to livestock raisers in the province of Cagayan as well as outside by the Gattaran Stock Farm and Cagayan Breeding Center.

E. Marketing Services -

Adequate marketing services shall be made available to animal producers in the province. Such activities like dissemination of price information shall be the responsibility of the livestock extension technicians; the Bureau of Agricultural Economics thru the provincial statistician shall provide the marketing information. The Livestock and Poultry Marketing Task Force of the NFAC will assist in this direction.

The formation and/or revitalization of livestock and poultry marketing cooperatives shall be undertaken by the agricultural cooperatives officer of the APC, with the assistance of the livestock extension technicians.

F. Other Services -

There are other facilities available in aid to marketing in Cagayan. Power, cold storage, ice plants and transport facilities are available.

1. Electricity - The source of electric power in the capital of the province of Cagayan is available twenty-four hours a day. (See Appendix 7.)

2. Ice Plant - There are 8 ice plants operating in the province with capacity of 5 to 20 tons of ice per day. (See Appendix 8.)

3. Cold Storage - No cold storage available.

4. Transport - Inland transportation facilities are available. Good roads connect the different municipalities as well as outside the neighboring provinces up to the City of Manila. Air transportation is also available. (See Appendix 9.)

G. Budgetary Allocations -

The estimated budgetary requirements for veterinary services program in Cagayan is ₱195,195.87. For the breakdown of the total budgetary requirement into the different items of expenses (See Appendix 10.)

H. Manpower -

The manpower available for the principal support services in Cagayan are shown in the following table. All the key personnel concerned will be given adequate orientation and training to carry out this program. (See Appendices 4 and 5 for Manpower available and Manpower Distribution in Cagayan.)

Table 6. - List of Key Personnel for the Program in Cagayan -

Position	Number
(a) Veterinary Services:	
Provincial Veterinarian	1
Livestock Inspector	15
(b) Extension Services:	
BAI Extension Technician	5
APC Extension Technician	3
(c) A.I. Services:	
Artificial Breeding Technician	1

III. PROGRAM IMPLEMENTATION ORGANIZATION -

The organizational set-up of the program implementation task force in Cagayan is shown in Chart 2. The provincial project director shall sit at the head of the organization to coordinate the activities of the various support field operating units in the province.

The respective duties and responsibilities of the key personnel involved in the program, are listed as follows:

A. Provincial Project Director -

1. The provincial veterinarian of the province shall act as the provincial project director of the program in Cagayan. (Chart 2)
2. He shall be directly responsible for coordinating the activities of the various units to achieve the specific targets of the program in the province.
3. He shall be assisted in carrying out his functions and responsibilities by a staff composed of the head of the various field operating units in the province.

4. The provincial project director shall call his staff for conference at least once a month, to discuss and solve the problems concerning any units, to keep him posted on the progress of the program in the province.

5. He shall coordinate with other agencies (government and private) whose activities have bearing on the program.

6. He shall transmit all orders, memoranda, circulars sent to him (or through him) and shall cause to be delivered such supplies, materials, equipment, etc. intended for any field units in the province.

B. Provincial Veterinarian -

1. The provincial veterinarian shall be responsible for the achievement of the targets for veterinary services, particularly on (a) vaccination and/or immunization, (b) diagnostic test and/or examination for parasites, (c) treatment and (d) quarantine and/or inspection, programmed for the province of Cagayan.

2. He shall be primarily responsible for the prevention and control of dangerous communicable animal diseases in the province.

3. He shall be primarily responsible for the compilation of records of (a) animals slaughtered in or outside the public and/or private slaughterhouses; (b) animals shipped out of the province for slaughter or for work or for breeding purposes; (c) incremental outputs in livestock and/or poultry, resulting from births and/or increase in size or weight; and (d) other pertinent data or information related to the animal industry.

4. He shall be responsible for the submission of monthly reports, regarding the quantity of meat and/or eggs produced

in the province every month, either based on the dressed carcass weight of the animals slaughtered, or the equivalent in dressed carcass weight of animals shipped out of the province. (For purposes of uniform evaluation and reporting, a table of equivalent shall be furnished to all concerned

C. Livestock Inspector -

1. Every livestock inspector concerned shall be directly responsible to the provincial veterinarian, particularly with respect to the veterinary services targets in his (livestock inspector) sector.

2. He shall be responsible for the collection and submission to the provincial veterinarian of all data pertaining to the meat and/or eggs produced, or the dressed (or equivalent dressed) weights of animals slaughtered and/or shipped out of his sector.

3. He shall be primarily responsible for scouting, reporting and preventing such disease outbreaks or epidemics in his sector.

4. He shall work closely with the other personnel working in his sector.

D. Agricultural Cooperatives Officer -

1. The principal duties of the agricultural cooperatives officer of the APC in Cagayan shall be the formation and/or revitalization of the poultry and livestock marketing cooperatives in the province.

2. He shall work closely with the agricultural credit officer of the ACA and the livestock extension technicians.

3. He shall coordinate closely with and shall submit his monthly reports of activities and accomplishments along this area to

the provincial project director for transmittal to the Action Officer in Manila.

E. Agricultural Credit Officer -

1. The principal duties of the agricultural credit officer of the ACA in Cagayan shall be the supervision of the credit operations of the ACA or other lending institutions.

2. He shall work closely with the agricultural cooperatives officer, the livestock extension officer and the animal raisers.

3. He shall coordinate closely with and shall submit his monthly reports of activities and accomplishments along this line to the provincial project director for transmittal to the Action Officer in Manila.

F. Provincial Statistician -

1. The provincial statistician of the Bureau of Agricultural Economics shall be primarily responsible for the collection and dissemination of production, financing and marketing data in the province, with the assistance of the extension technicians.

2. He shall work closely with and shall submit his monthly reports of activities and accomplishments to the provincial project director for transmittal to the Action Officer in Manila.

3. He shall work closely with the other personnel involved in this program.

G. Livestock Extension Officer -

1. The most qualified extension personnel belonging to any of the NFAC agencies in Cagayan shall be designated as the Live-Stock Extension Officer in the province.

2. He shall be primarily responsible for coordinating, directing and supervising the activities of the livestock extension technicians in the province.

3. He shall work in close coordination with the provincial project director and the head of the various units in the province, in order that the livestock extension program could effectively support the other services, such as veterinary, artificial insemination, etc.

4. He shall gather, collect and submit all reports of extension technicians to the provincial project director every end of the month for transmittal to the Action Officer in Manila.

5. For purposes of providing effective support to this program, the minimum target for each livestock extension technician shall be 5,000 animal units a year. Under favorable conditions, the extension technician could overshot his target and hit at 10,000 or more animal units a year.

6. In other words, where the livestock inspector in the specific area could hit at, say, 7,000 animal units and the A.B. technician expects to hit at, say, 3,000 animal units, the extension technician in the area should and ought to prepare the ground for servicing 10,000 or more animal units.

H. Livestock Extension Technician -

The duties of the livestock extension technicians along the various areas of extension shall be as follows:

1. Veterinary Service Extension

(a) teach proper sanitation, prevention, control and eradication of animal pests and diseases;

(b) demonstrate proper vaccination and/or immunization of animals;

(c) explain importance of quarantine in the control of dangerous communicable animal diseases;

(d) educate raisers to submit their animals to regular examination for parasitism;

(e) educate raisers to submit their animals to regular diag-

nostic examination for brucellosis, tuberculosis, etc.;

(f) teach, demonstrate proper disposal of sick or dead birds and animals.

2. Animal husbandry -

(a) promote the use of A.I. as a tool for the production of better quality animals by showing progenies;

(b) teach detection of estrus and the determination of the best time for insemination for different animals by use of various devices;

(c) teach and demonstrate the proper care and management of pregnant animals;

(d) teach and demonstrate the proper care and management of newly born animals;

(e) encourage the use of proven and/or pedigreed/progeny tested sires by showing progenies of such sires, if possible;

(f) teach the proper use of feed supplements with the use of research data and/or statistics;

(g) teach the importance of and encourage the use of balanced diet rations by showing results of successful animal raisers;

(h) teach and demonstrate proper culling and selection of breeding animals;

(i) explain and encourage swine progeny testing;

(j) teach, demonstrate and encourage use of farm wastes, farm by-products and non-protein nitrogen in feedlot fattening of cattle and carabaos;

(k) demonstrate and teach importance of caponizing and castrating animals for fattening purposes or otherwise;

(l) teach, demonstrate and encourage systematic recording.

3. Forage and pasture management -

(a) teach, demonstrate and encourage forage and pasture im-

nostic examination for brucellosis, tuberculosis, etc.;

(f) teach, demonstrate proper disposal of sick or dead birds and animals.

2. Animal husbandry -

(a) promote the use of A.I. as a tool for the production of better quality animals by showing progenies;

(b) teach detection of estrus and the determination of the best time for insemination for different animals by use of various devices;

(c) teach and demonstrate the proper care and management of pregnant animals;

(d) teach and demonstrate the proper care and management of newly born animals;

(e) encourage the use of proven and/or pedigreed/progeny tested sires by showing progenies of such sires, if possible;

(f) teach the proper use of feed supplements with the use of research data and/or statistics;

(g) teach the importance of and encourage the use of balanced diet rations by showing results of successful animal raisers;

(h) teach and demonstrate proper culling and selection of breeding animals;

(i) explain and encourage swine progeny testing;

(j) teach, demonstrate and encourage use of farm wastes, farm by-products and non-protein nitrogen in feedlot fattening of cattle and carabaos;

(k) demonstrate and teach importance of caponizing and castrating animals for fattening purposes or otherwise;

(l) teach, demonstrate and encourage systematic recording.

3. Forage and pasture management -

(a) teach, demonstrate and encourage forage and pasture im-

provement, silage and hay making;

(b) teach feedgrain culture, production, harvesting, storage and marketing;

(c) teach, demonstrate and encourage proper utilization of pastures, renovation and maintenance;

(d) teach, demonstrate and encourage proper record keeping.

4. Credit financing -

(a) assist producers obtain liberal credit financing;

(b) assist producers and credit lenders to structure loaning procedures and operations;

(c) assist producers in the preparation of plans and programs, or feasibility study to be submitted for financing; and

(d) encourage proper use of credit facilities.

5. Marketing -

(a) disseminate basic marketing information such as price, demand and supply of livestock and poultry commodities;

(b) assist (the APC Agricultural Cooperatives Officer and the ACA Agricultural Credit Officer) in the formation or revitalization of poultry or livestock marketing cooperatives or associations;

(c) promote (in coordination with Bureau of Standards) proper grading and standardization of livestock or poultry products;

(d) promote the establishment of livestock auction markets where it is feasible;

(e) promote the sale of poultry and livestock products through marketing cooperatives or associations; and

(f) promote the sale of animals by weight instead of by head or piece.

6. Collection of vital information -

(a) collect production and/or marketing costs of livestock and poultry products, feeds and feed ingredients, etc.;

(b) gather data on number of animal raisers producing cattle, hogs, poultry, eggs, etc. on commercial and semi-commercial scale;

(c) gather data on number of swine and cattle raisers using feedgrains;

(d) collect data on number of raisers vaccinating or immunizing their birds or animals;

(e) collect data on number of commercial or semi-commercial swine raisers submitting to progeny testing;

(f) collect data on number of existing cooperatives or associations, or number formed from time to time;

(g) collect data on number of raisers who are members of cooperatives or associations and selling their products through them;

(h) collect data on average liveweights of various classes of animals, including poultry, and their corresponding average dressed weights and prices;

(i) submit monthly reports of activities and accomplishments to the Livestock Extension Officer for submission to the Provincial Project Director.

APPENDIX 1. -

MEAT PRODUCTION TARGETS FOR CAGAYAN BY MUNICIPALITY, FY 1971 (IN METRIC TONS)

MUNICIPALITY	POULTRY	PORK	CARABEEF	BEEF	HORSE	GOAT
1. Abulug	53.64	209.19	62.28	4.83	1.22	1.34
2. Alcala	65.88	513.91	91.80	3.46	1.12	4.54
3. Alacapan	69.66	146.83	46.80	0.34	0.03	1.43
4. Anulong	81.36	707.00	108.00	8.06	4.44	4.68
5. Aparri	65.88	334.90	84.78	86.34	23.83	6.54
6. Baggao	134.10	688.90	105.66	8.13	5.41	1.40
7. Ballesteros	67.68	247.40	65.16	18.85	4.79	2.76
8. Buguey	79.74	341.94	80.82	4.86	0.60	2.54
9. Calayan	20.52	190.08	19.80	18.77	12.35	13.31
10. Camalaniligan	34.56	163.93	83.56	0.38	0.85	2.70
11. Claveria	62.28	379.15	38.34	12.77	0.48	2.15
12. Enrile	44.46	268.52	71.64	21.74	7.53	2.37
13. Faire	92.88	389.21	71.10	1.90	6.69	2.84
14. Gattaran	116.82	609.45	102.96	9.73	5.25	7.90
15. Gonzaga	42.48	182.03	62.28	6.95	1.03	4.53
16. Inguig	38.88	383.17	57.60	2.28	1.78	2.87
17. Lal-lo	63.34	256.45	84.60	3.88	0.60	1.44
18. Langañgan	4.14	11.06	9.00	-	0.18	0.37
19. Lasam	117.18	519.95	64.26	2.20	3.64	2.37
20. Peñablanca	122.04	599.41	92.34	31.69	21.23	7.21
21. Piat	59.94	330.88	52.74	23.18	6.66	0.93
22. Pamplona	25.56	130.74	32.58	6.46	0.05	1.87
23. Rizal	30.42	163.93	44.28	13.83	4.64	1.26
24. Sanchez-Mira	50.40	266.51	29.52	21.85	1.16	0.81
25. Sta. Ana	19.08	130.74	24.12	0.61	0.45	1.20
26. Solana	81.90	728.13	100.44	33.70	10.48	0.63
27. Tuao	70.56	504.86	75.60	15.39	9.74	1.39
28. Tuguegarao	82.62	658.73	77.94	17.82	14.77	4.62
T O T A L	1,800	10,[illegible]7	3,788	380	151	86

NOTE: Municipalities created after 1960 are included in their mother municipality.

APPENDIX 2. -

EGG PRODUCTION TARGET FOR CAGAYAN BY MUNICIPALITY, FY 1971 (IN METRIC TONS)

(2,105 M.T.)

MUNICIPALITY	EGGS (M.T.)
1. Abulug	62.73
2. Alcala	77.04
3. Allacapan	81.46
4. Anulang	95.15
5. Aparri	77.04
6. Baggao	156.82
7. Ballesteros	79.15
8. Buguey	93.25
9. Calayan	24.00
10. Camalaniugan	40.42
11. Claveria	72.83
12. Enrile	51.99
13. Faire	108.62
14. Battaran	136.61
15. Gonzaga	49.68
16. Iguig	45.47
17. Lal-lo	76.41
18. Langañgan	4.84
19. Lasam	137.04
20. Pamplona	29.89
21. Peñablanca	142.72
22. Piat	70.10
23. Rizal	35.57
24. Sanchez-Mira	58.94
25. Sta. Ana	22.31
26. Solana	95.78
27. Tuao	82.52
28. Tuguegarao	96.62

NOTE: Municipalities created after 1960 are included in their mother municipality.

APPENDIX 3. -

PROJECTED LIVESTOCK AND POULTRY POPULATION FOR CAGAYAN, BY MUNICIPALITY, FY 1970

MUNICIPALITY	CARABAO (Head)	CATTLE (Head)	SWINE (Head)	POULTRY (Head)	TOTAL 1/ (A.U.)
	197,125	21,828	285,013	1,929,109	294,493
1. Abulug	6,821	277	5,928	57,487	8,857
2. Alcala	10,053	199	14,564	70,605	13,870
3. Alacapan	5,125	20	4,161	74,657	6,723
4. Amulong	11,828	463	20,036	87,106	17,169
5. Aparri	9,285	4,959	9,491	70,605	16,848
6. Baggao	11,571	467	19,523	143,719	17,379
7. Ballesteros	7,136	1,083	7,011	72,534	10,346
8. Banguey	8,851	279	9,690	85,460	11,922
9. Calayan	2,168	1,078	5,387	21,992	4,542
10. Camalaniugan	4,770	22	4,646	37,039	6,091
11. Claveria	4,199	733	10,745	66,747	7,748
12. Enrile	7,846	1,249	7,610	47,649	11,093
13. Faire	7,786	109	11,030	99,542	11,096
14. Gattaran	11,276	559	17,272	125,199	16,586
15. Gonzaga	6,821	399	5,159	45,527	8,706
16. Inguig	6,308	131	10,958	41,669	9,026
17. Lal-lo	9,265	223	7,268	70,027	11,541
18. Langañgan	986	-	314	4,437	1,092
19. Lasam	7,037	127	14,735	125,585	11,366
20. Pamplona	3,568	371	3,705	27,393	5,953
21. Peñablanca	10,112	1,820	16,987	130,794	16,636
22. Piat	5,776	1,331	9,377	64,239	9,624
23. Rizal	4,849	795	4,646	32,602	6,169
24. Sanchez-Mira	3,233	1,255	7,553	54,015	6,538
25. Sta. Ana	2,641	35	3,705	20,449	3,621
26. Solana	11,000	1,936	20,635	87,774	17,940
27. Tuao	8,279	884	14,308	75,621	12,780
28. Tuguegarao	8,535	1,024	18,668	88,546	14,177

1/ = For Veterinary Services

NOTE: Municipalities created after 1960 are included in their mother municipality.

APPENDIX 4. -

MANPOWER DISTRIBUTION (L.I., EXTENSION TECHNICIAN, US PEACE CORPS) FOR CAGAYAN, FY 1971

	Municipality	Population (Animal Units)	Total	L.I.	Extension Worker	USPC
# *	Tuguegarao	14,177				
*	Enrile	11,093				
	Peñablanca	16,636	41,906	2		
*	Solana	17,940	17,940	1		
*	Tuao	12,780	12,780	1		
*	Piat	9,624				
	Rizal	6,169	15,793	1		1
	Iguing	9,026				
# *	Anulang	17,169	26,195	1		
*	Baggao	17,379	17,379	1		
*	Alcala	13,870				
	Faire	11,096	24,966	1		1
*	Gattaran	16,540				
	Lasam	11,366	27,906	1		
*	Lal-lo	11,541				
	Camalaniugan	6,091	17,632	1		
*	Allacapan	6,723				
	Colayan	4,542	11,265	1		1
# *	Aparri	16,848	16,848	1		
*	Buguey	11,922				
	Gonzaga	8,706				
	Sta. Ana	3,621	24,249	1		1
*	Ballesteros	10,346				
	Abulug	8,857				
	Pamplona	5,953	25,156	1		
	Sanchez-Mira	6,538				
# *	Claveria	7,748				
	Langañgan	1,092	15,378	1		1
TOTAL	28	295,393	295,393	15		5

Official Station:

* = Livestock Inspector
\# = Extension Technician
x = US Peace Corps

NOTE: Municipalities created after 1960 are included in their mother municipality.

APPENDIX 5. -

LIST OF MANPOWER AVAILABLE FOR CAGAYAN, FY 1971

POSITION AND NAME	LOCATION OF ASSIGNMENT	EDUCATIONAL QUALIFICATION (DEGREE & WHERE OBTAINED)
A. Provincial Veterinarian		
1. Francisco Aquilizan	Tuguegarao	D.V.M. - U.P.
B. Livestock-Poultry Technologist		
1. Feliciano Mamuad	Gattaran Stock Farm	B.S.A.E.
C. Livestock Inspector		
1. Patricio Los Baños	Lal-lo	2nd Yr. Agric.
2. Herminio Fajarillo	Buguey	High School Graduate
3. Catalino Perdido	Sanchez-Mira	B.S.A. - A.U.
4. Virgilio Unida	Baggo	B.S.A.H.
5. Elias Villasanta	Aparri	High School Graduate (Agri.)
6. _____		
7. _____		
8. _____		
9. _____		
10. _____		
11. _____		
12. _____		
13. _____		
14. _____		
15. _____		
D. Breeding Station Manager		
1. _____	Cagayan Brdg. Stn., Solana	
E. Artificial Breeding Technician		
1. _____		
F. BAI Livestock Extension Technician		
1. _____		
2. _____		
3. _____		
4. _____		
5. _____		
G. APC Extension Technician		
1. Banjamin Zingapan		
2. Orlando Parelio		
3. Robert Dona		

APPENDIX 6. -

LIST OF BANKS (AND THEIR CAPITALIZATION) IN CAGAYAN

NAME OF BANK AND MUNICIPALITY	PAID-UP CAPITAL AS OF DEC. 31, 1968		
	PRIVATE	GOVERNMENT	TOTAL
1. Rural Bank of Faire	₱ 124,800	₱ 88,500	₱ 213,300
2. Rural Bank of Tuguegarao	114,450	110,000	224,450
3. Lal-lo Rural Bank	121,200	121,100	242,300
4. Rural Bank of Ballesteros	186,000	182,000	368,000
5. Rural Bank of Solana	120,100	100,100	220,200
	₱ 666,550	₱ 601,700	₱1,268,250
DBP Branch (Tuguegarao)			₱3,301,000

APPENDIX 7. -

LIST OF ELECTRIC PLANTS IN CAGAYAN

Location of Power Plant	Name of Operator	Distribution Voltage	Hours of Service	Plant Capacity (KW)	Town or City Served
Aparri	Development Bank of the Philippines	220 V	12	268	Aparri
Ballesteros	Bienvenido Guirolgico	220 V	12	50	Ballesteros
Claveria	Angel Aguinaldo	220 V	12	45	Claveria
Gattaran	Municipality of Gattaran	Provisionally authorized			Gattaran
Tuguegarao	Tuguegarao Electric Plant Co., Inc.	220 V	12 & 24	774	Tuguegarao

APPENDIX 8. -

LIST OF ICE PLANTS IN CAGAYAN

Location	Operator	Capacity		Authorized Rate	
		Authorized: Tons / day	Actual: Tons / day	At Plant: Per kgm.	Delivered Per kgm.
, Aparri	Pilar Lozano de Valenzuela	15	6	P 0.12	P 0.14
, Lal-lo	Tito Dupaya	15	none	0.12	0.14
, Enrile	Domingo A. Tuazon & Domingo Mendoza	10	none	0.08	0.10
, Ballesteros	Estrella P. Fernandez	10	5	0.08	0.10
, Buguey	Estrella P. Fernandez	5	5	0.08	0.10
, Camalaniugan	Timotec Roxas	10	none	0.05	0.06
, Tuguegarao	Jose M. Torres	20	20	0.12	0.14
, Tuguegarao	Sebastian Gollayan	20	20	0.06	0.07

ɔurce: Public Service Commission, Industrial Division as of June 30, 1970.

APPENDIX 9. -

PLANE SCHEDULE FOR CAGAYAN

ME OF RLINE	ORIGIN	FLIGHT SCHEDULE		DESTINATION	KIND OF FLIGHT	AUTHD FARE/ FREIGHT	FREQUENCY	REMARKS
		DEPARTURE	ARRIVAL					
A L	Manila	9:25 AM	10:45 AM	Tuguegarao	Day	P 50.00	Daily	
	Manila	1:00 PM	2:45 PM	Tuguegarao	-do-	50.00	Mon Wed & Fri	Via Cauayan
	Tuguegarao	11:00 AM	12:45 PM	Manila	-do-	50.00	Daily	
	Tuguegarao	3:15 PM	5:00 PM	Manila	-do-	50.00	Mon Wed & Fri	
	Manila	1:15 PM	2:30 PM	Tuguegarao	-do-	50.00	Tues & Thur	
	Tuguegarao	4:50 PM	6:00 PM	Manila	-do-	50.00	Tues & Thur	

APPENDIX 10. - SUMMARY OF BUDGETARY REQUIREMENTS OF VETERINARY SERVICES, PROVINCE OF CAGAYAN, FY 1971

I T E M	
Personal Services	₱ 115,650.00
Traveling Expenses	36,000.00
Communication Services	465.67
Repair & Maintenance Facilities	2,000.00
Transportation Services	1,957.54
Other Services	8,929.54
Supplies & Materials	27,651.41
Equipment Outlay	2,541.71
T O T A L	₱ 195,195.87

Appendix A. - SHIPPING CHARGES OF LIVE ANIMALS FROM DIFFERENT PORTS TO MANILA 1/

PORTS	PIGS & GOATS (Per Head)	CATTLE, CARABAO HORSES & BUFFALO (Per Head)	POULTRY Per C.U.M.
COMPANIA MARITIMA			
1. Bugo	₱ 6.14	₱ 38.35	₱19.55
2. Capiz	4.49	27.61	17.35
3. Catbalogan	4.60	30.60	15.45
4. Cagayan de Oro	6.14	38.35	19.55
5. Cebu	5.37	21.91	14.95
6. Coron	3.84	19.95	10.15
7. Cotabato	10.58	52.16	26.25
8. Dadiangas	10.50	55.22	29.05
9. Davao	10.74	61.36	31.05
10. Iligan	6.14	38.35	19.55
11. Iloilo	4.60	23.01	13.40
12. Mangarin	6.25	25.00	12.50
13. Nasipit	9.62	-	19.25
14. New Washington	4.49	27.61	17.35
15. Puerto Princesa	6.50	27.61	14.05
16. Pulupandan	4.60	23.01	13.40
17. Tacloban	5.37	30.60	16.25
18. Zamboanga	10.00	39.88	20.00
WILLIAM LINES INC. & DA-CEMA LINES			
1. Cagayan de Oro	6.14	38.35	8.67/ .400 cu.m.
2. Cebu	5.37	29.91	5.98/ .400 cu.m.
3. Dadiangas	10.58	55.22	29.05
4. Davao	10.74	61.31	31.05
5. Dumaguete	6.14	33.75	19.10
6. Iligan	6.14	38.35	8.67/ 400 cu.m.
7. Iloilo	4.60	23.00	5.21/ 400 cu. m.

Appendix A (cont'd.)

8. Ozamis	₱ 6.14	38.35	8.67/ .400 cu. m.
9. Pulupandan	4.60	23.00	5.21/ .400 cu. m.
10. Tagbilaran	6.14	33.75	19.10
11. Zamboanga	10.00	39.88	20.00
MD SHIPPING CORPORATION:			
1. Azagra	3.40	19.00	17.35
2. Calapan	3.25	17.00	12.60
3. Looc	3.25	17.00	15.80
4. Roxas	2.45	13.50	12.60
CARLOS A. GO THONG & CO.			
1. Butuan	6.14	38.85	21.00
2. Cagayan de Oro	6.14	38.85	21.00
3. Calbayog	4.60	30.68	15.45
4. Calubian	-	-	15.65
5. Catbalogan	4.60	30.68	15.45
6. Cebu	5.37	29.91	14.95
7. Cotabato	10.59	52.16	26.50
8. Dadiangas	10.58	55.22	29.05
9. Davao	10.74	61.36	31.05
10. Dipolog	7.67	-	19.25
11. Dumaguete	6.14	33.75	18.00
12. Iloilo	4.60	23.01	13.40
13. Masbate	4.29	21.48	12.16
14. Mati	-	-	31.80
15. Ozamis	6.14	38.85	21.00
16. Palompon	-	-	15.65
17. Surigao	-	-	18.35
18. Tacloban	5.37	30.60	16.25
19. Zamboanga	-	39.88	20.00
M & S LINES INC.			
1. Allen, Samar	4.95	31.20	16.15
2. Balanacan, Marinduque	5.10	25.40	12.70
3. Bulan	5.70	27.15	13.60
4. Calbayog	4.50	31.20	15.45
5. Capiz	4.50	27.60	17.35
6. Carmen	3.65	19.50	9.70
7. Cebu	5.40	29.90	16.10

Appendix A (cont'd.)

8. Laoang, Samar	₱ 6.45	₱ 32.25	₱16.10
9. Legaspi	-	31.60	15.80
10. Odiongan	5.50	31.60	15.80
11. Pulanduta	4.75	23.80	11.90
12. Romblon	4.60	23.00	13.45
13. Sorsogon	6.10	29.10	15.30
NEGROS NAVIGATION			
1. Bacolod	30.30/ cu.m.	30.30/ cu.m.	30.30
2. Iloilo	26.80/ cu.m.	26.80/ cu.m.	26.80
ESCANO LINES			
1. Butuan	6.14	38.85	19.55
2. Cagayan de Oro	6.14	38.85	19.55
3. Calbayog	4.60	30.68	15.45
4. Cebu	5.37	21.91	14.95
5. Gingoog	6.14	38.35	19.55
6. Iligan	10.74	61.36	31.05
7. Masbate	4.30	21.50	12.15
8. Surigao	-	-	-
9. Tacloban	5.37	30.60	16.25
GALAXY LINE INC.			
1. Calbayog	4.60	30.68	15.45
2. Catbalogan	4.60	30.68	15.45
3. Cebu	5.37	29.91	14.95
4. Iloilo	4.60	23.01	5.21/ crate of 400 chickens
5. Pandan	4.49	27.61	5.21/ crate of 400 chickens
6. Romblon	4.60	23.00	13.45
7. San Jose	4.60	23.01	5.21/ crate of 400 chickens

1/ - Per survey conducted by the BAI during the month of November, 1970.

Appendix B. - GUIDELINE AND OPERATIONAL DETAILS OF A PROGENY TESTING CENTER

I. INTRODUCTION:

The increasing demand for muscular meat-type hogs and the apparent decline in consumer acceptance of fat make it necessary that the swine industry produce meat type hogs, if it is to continue on a profitable basis. The selection of meat type breeding stock that will grow rapidly and efficiently is a basic problem to swine improvement for the commercial and purebred producer. The aim therefore of the swine industry is to breed swine that will produce large litters, grow rapidly and efficiently, and produce high-quality, meaty carcass for the consumer.

The Bureau of Animal Industry Swine Testing Station shall be operated as an aid to achieving these goals. The Station seeks:

1. To locate genetically superior strains of swine in the various breeds;

2. To provide a source of performance tested breeding stock for commercial and purebred swine breeders; and

3. To provide data that may be used to evaluate testing procedures and standards and to develop new criteria for selection.

This program is of benefit to the purebred breeder and the commercial breeder.

It aids the purebred breeder by providing:

1. A source of information on his herd;

2. An evaluation of herd sires and blood lines;

3. A comparison of performance of his animals with those of other breeders under uniform conditions;

4. A method of advertising his herd to help sell the animals at home as well as those in the Station;

5. A source of performance tested boars.

It aids the commercial producers:

1. By providing a source of performance tested boars;

2. By providing a source of information as to breeders that are carrying out a testing program;

3. By providing a guide to levels of performance that are being obtained.

II. DIRECTION

This program shall be directed by the Bureau of Animal Industry through its resources at the following stations:

Table 1. - List of Swine Progeny Testing Centers

Site of Centers	Location	Region
1. Isabela Breeding Station	Gamu, Isabela	II
2. Sta. Barbara Breeding Station	Sta. Barbara, Pangasinan	I
3. Tarlac Breeding Station	San Miguel, Tarlac	I
4. Bongabon Stock Farm	Palayan City	III
5. Alabang Stock Farm ,	Muntinlupa, Rizal	III
6. Iloilo Breeding Station	Calinog, Iloilo	V
7. Malaybalay Stock Farm	Malaybalay, Bukidnon	VIII
8. Davao Breeding Station	Davao City	VIII

III. BOAR TESTING PROGRAM:

Purebred boar pigs which are eligible for registration will be tested on their own merits entirely separate from the Litter Testing Program, which is described in Section IV. (Those who test boars are encouraged to test littermate pigs in the Litter Testing Program whenever possible.) Four pens, capable of accommodating a maximum of 16 boars at a time will be allocated to this program per station.

A. Eligibility

1. Boar pigs farrowed during February are eligible for the dry season test. Boar pigs farrowed

during August are eligible for the rainy season test.

2. Each boar must be eligible for registration with the Bureau of Animal Industry, and all littermates must be free of inherited defects such as hernias, undescended testicles and swirls.

3. To be tested a boar must first be from a Production Registry (PR) litter as recognized by the Bureau of Animal Industry. This means that the breeder should put all his eligible litters on PR test with the B.A.I. in order to qualify as many boar pigs for the test as possible.

B. Nomination

1. Forms for reserving pens and nominating boars will be mailed to breeders prior to each test. Pen reservations must be returned to the Bureau of Animal Industry not later than April 1 for the rainy season test or October 1 for the dry season test.

2. A maximum of 2 pens may be reserved by each breeder nominating boars. This will allow the breeder to test a minimum of 2 and a maximum of 8 boar pigs. A minimum of 2 and a maximum of 4 pigs will be placed in each pen. If nominations exceed the pens available, the last breeder(s) to request 2 pens will get only one pen and will be so notified. If a breeder decides not to use the pens he has reserved, he should notify the station immediately.

3. A fee of ₱10.00 will be assessed for each pen the breeder wishes to reserve. The fee must be sent in with the pen reservation form. The fee cannot be refunded unless space is unavailable.

C. Selection of Boars and Delivery to the Station

1. The breeder is free to select the boars he wishes to test provided they are eligible (see part A). There are no restrictions as to relationship among the boars.

2. The breeder should select boar pigs that are as even in weight as possible. In each pen the

boars selected must not differ more than 7 kg. in weight. If the boars differ more than 2 weeks in age, the breeder who plans to test 4 boars probably should request 2 pens.

3. Boars should be delivered to the station at about 22 kg. average weight. Each pen must be started on test when the average weight does not exceed 27 kg.

4. Upon delivery to the station, a fee of ₱250.00 per boar will be assessed to cover feed cost. Pigs cannot be accepted until this fee is paid.

5. Nomination form must be completed and turned in when the boars are delivered. Proof that each boar is from a PR litter will be required.

D. Testing Procedures

1. All boars will be weighed individually and started on test at an average weight per pen of 22 to 27 kg. Pigs will be weighed at 14-day intervals and will be probed for backfat thickness at 90 kg. Feed efficiency will be calculated (pen average) at 45 and 90 kg. average weight.

2. A complete, ground mixed ration will be fed to all boars. At 45 kg. average weight the protein content of this ration will be reduced from 16 to 14 percent (see Section VIII).

E. Minimum Standards for Passing the Test

1. Weight for age. When a boar is probed at 90 kg. he must not exceed 160 days of age.

2. Feed efficiency. The average feed efficiency for each pen of boars must not exceed 3.2 kg. of feed per kilogram of gain when measured at 90 kg. average weight.

3. Backfat thickness. When probed at 90 kg. liveweight, a boar must not exceed an average backfat thickness of 1.30 inches.

4. Boars which do not meet the above standards will be castrated. When these pigs are sold, the check will be mailed to the owner. The owner may take the pig home following castration if he prefers.

F. Sale of Boars

1. If feasible, an auction sale will be held following each test. A Swine Testing Committee will inspect each boar which passes the test for soundness and general appearance and will refuse to allow boars with serious unsoundness to sell. Such boars will not be castrated.

2. Owners will not be required to sell their boars in such a sale. Each sale will be publicized well in advance of the sale date.

3. An "index" (over-all estimate of performance) will be calculated for each boar, and they will sell in that order. Data collected on all boars will be made available to breeders, prospective buyers and others interested in the testing program.

IV. LITTER TESTING PROGRAM:

Two market pigs (barrows and/or gilts) representing a PR litter will be tested for rate of gain, feed efficiency and carcass merit entirely separate from the Boar Testing Program. Six pens capable of handling 4 pigs each will be available.

A. Eligibility

1. Litters farrowed during February are for the rainy season test. Those litters farrowed during August are eligible for the dry season test.

2. Only purebred litters that are eligible for registration with the Bureau of Animal Industry may be tested.

3. The litter must be recognized by the Bureau of Animal Industry as a PR litter before 2 pigs representing the litter can be put on test. Each breeder who plans to test litters should put as many litters as possible on PR test with the B.A.I.

B. Nomination

1. Forms for reserving pens and nominating litters will be mailed to breeders prior to each test. Pen reservations must be mailed to the testing

station not later than April 1 for the rainy season test and October 1 for the dry season test.

2. One to 3 pens may be reserved by each breeder, which will allow him to test 2, 4 or 6 litters (4, 8 or 12 pigs). The breeder must test at least 2 litters. A minimum of 4 pigs, representing 2 litters, will be fed per pen.

3. A fee of ₱10.00 per pen must be sent in with the pen reservation form. If the breeder fills each pen he reserves, the pen fee will be returned. Pen fees will also be returned if pigs cannot be accepted due to lack of space.

4. A nomination form for each litter to be tested should be mailed to the testing station by the time the litter is 56 days of age. On this form the breeder certifies that the B.A.I. has recognized this litter as a PR litter or that the PR requirements have been met and that application for recognition has been made.

5. If nominations exceed the pens available, the last breeder(s) to request 3 pens will get only 2 pens and will be so notified. If a breeder decide not to use one or more of the pens he has reserved, he should notify the station immediately.

6. Breeders who are attempting to certify their herd boar as a Certified Meat Sire should nominate litters which comply with the B.A.I.'s rules governing this program.

7. Those breeders who wish to use their pens for a Superior Meat Sire Test must also comply with the rules prescribed by the B.A.I.

3. Selection of Pigs and Delivery to the Station

1. The breeders must select 2 market pigs (barrows and/or gilts) to represent each litter nominated. He is free to select whichever 2 pigs he chooses. Since 4 pigs (representing 2 litters) must be fed per pen, the pigs selected should be as even in weight as possible. Any two pigs in the pen must not differ more than 7 kg. in weight when delivered.

2. A breeder who also has boars on test is encouraged to include in his litter testing program littermate pigs to his boars whenever possible.

3. All 4 pigs to be fed in one pen should be delivered to the station at the same time. Pigs should be delivered at 9 to 10 weeks of age. If a breeder with 2 or more pens nominates litters that differ considerably in age, more than one delivery will be necessary.

4. All market pigs become the property of the testing station upon delivery. Income above feed cost will be used to provide necessary equipment and new facilities.

D. Testing Procedures

1. All pigs will be weighed individually and started on feed at 9 to 10 weeks of age. Individual weights will be taken at 14-day intervals. Pigs will be removed for slaughter when weighing 90 to 100 kg., but a few pigs may be slaughtered as light as 80 kg. if necessary. A feed efficiency will be calculated when the pen averages about 45 kg., and the final feed efficiency figure for the pen will be calculated when the last pig is removed.

2. Pigs will be slaughtered at the Animal Products Section, L.R.D., B.A.I. data will be collected free of charge.

3. The rations to be fed are shown in Section VIII.

E. Minimum Standards for Litter Certification

Minimum standards for litter certification are those adopted by the Swine Breeders' Association of the Philippines. Both pigs representing the litter must meet those minimum standards before the litter can be certified. Certificates will be issued on those litters which qualify by the B.A.I. Testing Station. The breeder may then request his association to recognize the litter as Certified Litter on the basis of the information recorded on the certificate. The minimum standards are as follows:

1. Both pigs must reach a weight of 90 kg. by 180 days of age. (Both pigs must be slaughtered

between 80 to 100 kg. liveweight. Days of age at 90 kg. will be calculated on the basis of 0.9 kg. of gain per day for those pigs not slaughtered, at exactly 90 kg. liveweight.

2. Both pigs must meet each of the following carcass standards:

Minimum length (1st rib to aitchbone)	29.0 inches
Minimum average backfat (av. of 3 measurements)	1.60 inches
Minimum loin eye area (10th rib)	4.00 sq. in.

V. PUBLICATION OF TEST RESULTS:

The results of the boar testing and litter testing program will be published at the end of each test in the B.A.I. Recorder. The results will be sent to participating breeders, extension agents and others interested in swine improvement.

VI. HEALTH REGULATIONS:

A. Herd From Which Pigs Come

1. No animal will be accepted from a quarantined herd.

2. The following diseases shall not have occurred in the herd during indicated time period prior to delivery of the boars to the station. The owner shall certify to this effect according to the best of his knowledge. (Breeders having health problems are requested not to submit entries.)

Swine dysentery	1 year
TGE	3 months
Atrophic rhinitis	1 year
Nonspecific enteritis	1 year
Acute erysipelas	3 months
Hog Cholera	3 months
Abortions involving more than 5% of sow herd (any cause)	4 months
Jittery pigs, "shakers"	No pigs accepted from litters showing this condition

B. Health of Individual Pigs

1. Pigs shall show no sign of any disease.

2. Pigs must be vaccinated for hog cholera with modified virus and serum any time prior to delivery. The date of vaccinations shall be shown on the nomination form.

3. Barrows must be healed from castration before delivery to the station.

4. Pigs shall be delivered to the station in a car or truck owned by the owner of the pigs and not by a commercial carrier. The truck should be well cleaned and disinfected if it has been used previously to transport livestock.

C. Health Measures to be Taken at the Station

1. Each boar shall be blood tested for Brucellosis.

2. Each pig will be treated for external and internal parasites.

3. Other prophylactic and/or therapeutic as recommended by attending or consulting veterinarians will be taken.

4. Any pig which becomes a threat to the health of other swine at the station will be removed and returned to the owner (at his expense) or destroyed, without recourse by the owner.

VII. WHO TO CONTACT:

Questions regarding the program should be directed to _____, who will be in charge of the test.

VIII. TESTING STATION RATIONS:

These rations will be self-fed to both boars and market pigs in meal form. Ration A (16% protein) will be fed until pigs average 45 kg. Ration B (14% protein) will be fed from 45 kg. until pigs are removed.

	Parts	
Ingredient	Ration A	Ration B
Rice bran, 1st cl.	60.0	60.0
Corn, yellow (ground)	20.0	24.0
Copra meal	5.0	5.0
Soybean oil meal	5.0	4.0

Fish meal, 60% c.p.	6.0	3.0
Molasses, cane	2.0	2.0
Crystal shell powder	1.5	1.5
Salt, common table	0.5	0.5
	100.0	100.00

IX. TARGETS:

The targets of the Swine Progeny Testing Program for FY 1971 are set in the following table:

Table 2. - Breakdown of Swine Progeny Testing Targets, FY 1971

	Boars (Hd.)	Market Pigs (Hd.)	Total (Hd.)
Per year per Center	32	48	80
Per year for 8 Centers	256	384	640

BUDGETARY REQUIREMENTS
EACH OPERATIONAL FISAL YEAR

1. Salaries and Wages:

(a) Eight (8) Animal Caretakers, ₱2540/annum ---------- ₱ 20,320.00

(b) Eight (8) Livestock & Poultry Technologist, ₱4,632/annum ---------- 37,056.00

2. Equipment:

(a) Eight (8) Portable livestock scale, Model 500 Porta Scale, 46"L x 45"H x 22-½"W. Single beam numbered to 100 pounds. Three weights are furnished, 50 pounds, 100 pounds and 150 pounds ---------- 10,000.00

(b) Eight (8) units, Hanson Utility Scale, 7" platform, 8" dial. Weighs up to 6 lbs., ₱150.00 each ---------- 1,200.00

3. Supplies:

(a) Sixteen (16) units, Swine backfat probes, of etched style, ½" x 6" x

	.020 stainless steel, rectangular shape with square corners. Graduations on one end are in 1/10", opposite end, .04" ----------	62.40
(b)	Thirty-two (32) units, Heavy duty fiber broom, ₱5.00 each ----------	160.00
(c)	Thirty-two (32) units, Galvanized pails, 8 qt. capacity, ₱4.00 each ------	128.00
(d)	Concentrate feeds, 245,760 kgms. -------	157,456.00
(e)	Drugs, medicines, etc. ----------	1,280.00
(f)	Miscellaneous ----------	5,000.00
Sundry ----------		500.00

S U M M A R Y

1.	Salaries and Wages ----------	₱ 57,376.00
2.	Equipment ----------	11,200.00
3.	Supplies ----------	164,086.40
4.	Sundry ----------	500.00
		₱ 233,162.00

INCOME:

(a)	Fees to cover feed costs ----------	₱ 160,000.00
(b)	Fees per pen used ----------	640.00
	T O T A L =	₱ 160,640.00

Appendix C. - Legume Seeds and Pasture Grass Production Program

S U M M A R Y

The first year fund requirements of the program will iount to P160,565. Following are the goals of the program:

1) six-day training course for 15 key BAI personnel who will lead the seed production project in the different stations;

2) establishment of seed production plots at ten BAI stations; enough planting materials to establish 800 hectares of improved grasses will be produced as well as 334 hectares of production legumes;

3) seed production of new cultivars at UPCA and conduct of applied studies on pasture seed production problems;

4) establishment of two major seed farms at Malaybalay and Bongabon; enough seeds to plant 2,260 hectares of pasture legumes will be produced;

5) encouragement of farmer seed cooperators to engage in seed production;

6) preparation and publication of bulletin on "Pasture Grasses and Legumes in the Philippines" and other extension leaflets; and

7) distribution of pasture seed kits to farms and ranches; these kits will enable farms to produce their own seed and also serve as variety observation trials.

I. Introduction

The Four-Year BAI program on the production of animal protein feeds calls for the massive development of our cattle industry to satisfy the country's effective demand for meat and also produce surplus for export. Complementary with the effort to upgrade local stock with A.I., to further strengthen animal health services, and to raise the level of cattle management, is a program to develop our pasture resources. To achieve the latter, it is proposed that the BAI in cooperation with other agencies embark on a coordinated national pasture research and extension program. This program will involve the intensification of pasture seed production, the conduct of applied research at three or four pasture regional research stations, a graduate training program to supply technical man-power needs for pasture development and an extension program which will include training of extension personnel, ranchers-farmers and preparation of extension materials.

This project overs only the seed production phase of the proposed over-all national effort.

Lack of Planting Materials - Lack of planting materials, either as seeds or vegetative cuttings, is a common problem to all our agricultural and horticultural crops. In the absence of a seed industry in the country, the government had no other recourse but to engage in the seed trade. In fact, this has been the situation for rice, corn, sorghum, soybean, mungo and peanuts. However, it is anticipated that eventually seed companies will take over this function.

II. Pasture Seed Production Program

Rationale - Intensive government participation (represented by BAI) in seed production is at best a temporary expedience to accelerate pasture resources development in the country. As farmers become familiar with the new improved species and as the effective demand for seed becomes larger, the private sector will gradually take over the commercial seed production function. At a much later stage, government participation will be along regulatory lines such as seed testing and seed certification, breeding and selection of new cultivars, and source of breeders and foundation seeds.

Proposed Program of Activities (First Year)

1. Six-day Training Course for BAI Personnel - This is a short course to train/retrain key BAI personnel who will lead seed production projects in the different stations. Specifically, these will be the superintendent, manager, officer-in-charge or Livestock-Poultry Technologist in charge of the particular station involved. To ensure a high level of supervision, the Central Office Implementing Staff members like Dr. Andres T. Peros and his assistants, Messers. Amado Abordo and Nolasco Bueta, both Livestock-Poultry Technologists need also to participate in the said training program. The training will include basic principles and practices in crop production, tropical pasture management, seed production, grazing management, and farm operations. Training will be conducted at BAI, DTRI and UPCA.

2. Seed Production at ten BAI Stations - Ten BAI stations will be selected as sites for grass multiplication and legume seed production. The stations will be selected based on geographical distribution and available resources at the station.

Each station will plant one hectare each of Napier, Guinea, Para and Stargrass. Each of these grasses are expected to yield on the average 80 tons of planting materials a year. At a planting rate of 3-5 tons/hectare, enough materials will be produced to establish 16-26 hectares each of the four grasses.

One-fifth hectare blocks of Centrosema, perennial stylo, Townsville stylo and Siratro will also be planted. Expected yields are 100 kgms., 40 kgms., 40 gkms., and 100 kgms., respectively. These seeds are enough to plant 6.6, 7.0, 7.0, 10.0 hectares, respectively.

Shwon in Table I are the projected seed yields and areas which can be planted with the seeds produced. (See Enclosure)

3. Seed Production at UPCA - These is an on-going seed production project at UPCA. This will be expanded further. Seed production and seed testing techniques especially for new, improved species will be worked out at the Division of Plant Breeding and Seed Technology laboratory at UPCA.

Seeds of the following new cultivars will be produced: Silver leaf Desmodium, Greenleaf Desmodium, Cooper Glycine, Tinaroc Glycine, Schofield Stylo, low mimosine Leucaena, Dolichos axillaris, Dolichos lablab Phasey bean and Green panic.

4. Seed Production at two Major Seed Farms - Large-scale seed production will be conducted at Malaybalay and Bongabon stock farms. Initial efforts will be concentrated on legumes. However, as equipment become available, seed production of grasses such as Guinea grass, Rhodes grass and Buffel grass will be conducted.

Six hectares each of Centrosema, Perennial stylo, Townsville stylo and Siratro will be established at each station. Expected seed yields are 6000, 2400, 2400 and 6000 kgms. respectively. These seeds are enough to plant 600, 480, 480, and 600 hectares, respectively.

5. Seed Production Scheme with Farmer Cooperators - Small farms in Davao produce Centrosema seeds in small quantities every summer. A cooperative scheme will be worked out to encourage these farms to expand their operations.

Contacts will be made with big ranches to determine their seed needs for the coming year. These information will be relayed to prospective seed cooperators. Ranches will be encouraged to guarantee purchase of seeds. If possible the seed buyers and seed producers will be encouraged to enter into agreements. With the market assured, the small seed producers in Davao are anticipated to expand their efforts.

The program will also engage in small scale buying processing and packaging of seeds. The seeds will be sold to interested farmers together with the seeds produced from the ten (10) BAI stations, two major seed farms and at UPCA. The seeds will be packaged into cartons similar to the rice and soybean minikits together with instructions on how to plant and manage these crops. Enough seeds to plant one hectare each of the recommended species will be put into the kits. The areas planted out of these kits will serve as seed production plots for the farmer's own seed needs as well as a variety trial.

6. Preparation of Pasture Extension Materials - There is a dearth of extension materials for pasture

management. A pasture specialist will be appointed to help prepare extension materials. An allocation for printingof these materials is provided.

A bulletin on "Pasture Grasses and Legumes in the Philippines" will be published. Extension leaflets for the recommended species will be prepared.

7. Other Activities - Large scale commercial seed production is a highly specialized enterprise. It requires big outlays for seed harvesting, threshing, cleaning, grading and packaging equipment as well as an efficient distribution system. It is suggested that one or two pasture seed specialists be sent abroad to Oregon and California, U.S. and to Queensland, Australia to observe latest developments in pasture seed production and to prepare order of equipment for a much expanded seed production program.

LEGUME SEED AND PASTURE GRASS PRODUCTION PROGRAM
(November 1970 to June 1971)

Proposed Budget

	Item	Amount
I.	Six-day Training Course for BAI Personnel	₱ 10,085
II.	Allocation for ten BAI Seed Production Stations at 4,800	48,000
III.	Allocation for Major Seed Production Farms at Bongabon and Malaybalay	50,000
IV.	Allocation for Seed Production Center at UPCA	10,000
V.	Repair of Combine-Harvester Thresher at UPCA (to be loaned to Bongabon for seed Production)	2,000
VI.	Administrative Costs	30,480
VII.	Seed Production Scheme with Farm Cooperators	10,000
	T O T A L	₱ 160,565

Breakdown of Expenses:

I. Six-day Training Course in Pasture Management and Seed Production

Expenses for Trainee	Cost
Per diem, 9 days at P18/day	P 162
Transportation, Province to Manila-College, Laguna and return, P400 average per trainee	400
Registration at UPCA and Honorarium to lecturers P40/week	40
Handouts, Leaflets, Herbsrium Specimens	50
Miscellaneous	20
Sub-Total	P 672

Total Cost

15 trainees at P672 — P10,085

Breakdown of Expenses

II. Allocation for each BAI Station

I.	Wages	
	Emergency labor ----------	P 1,841.00
II.	Supplies ----------	1,959.00
III.	Tools and Equipment ----------	900.00
IV.	Other expenses	
	Travel ----------	300.00
	Sundry (contract for land preparation at P150/ha) ----------	900.00
	Miscellaneous stamps, telegrams, etc. ----------	100.00
	T o t a l ----------	P 6,000.00
	Total for Ten Stations ----------	P48,000.00

II. Allocation for each BAI station

Breakdown of Expenses

Supplies

Qty.	Item	Unit Price	Total Cost
14 bags	Complete fertilizer (12-12-12)	P38.50	P539.00
5 bags	Superphosphate (0-20-0)	32.00	160.00
8 bags	Ammonium sulfate (21-0-0)	20.00	160.00
	Other field supplies (paper bags, jute sacks, abaca twine, GI wire, shipping tags etc.)		700.00
	Office supplies		400.00
	T o t a l ----------		P1,959.00

Tools and Equipment

Qty.	Item	Unit Price	Total Costs
One	Field scale, Chatillion brand, 30 kgms. cap.	P150.00	P150.00
One	Steel tape, Toro branch 50 meters	150.00	150.00
	Small farm tools (spade, fork, scythes, bolos, rakes, hoes, pliers, pruning shears, hammer, etc.)		600.00
	T o t a l ----------		P900.00

Breakdown of Expenses:

III. Seed Production at UPCA

I.	Wages	₱ 2,096.00
II.	Supplies	
	herbicides	1,250.00
	fertilizers	1,500.00
	Other field supplies	1,500.00
	office supplies	500.00
III.	Travel	500.00
IV.	Other expenses	
	contract - for land preparation, guarding against birds, weeding, harvesting	2,654.00
	T O T A L	₱10,000.00

Breakdown of Expenses:

IV. Allocation for two major seed farms (Malaybalay and Bongabon)

I.	Wages	
	Emergency laborer ----------	P 3,000.00
II.	Supplies	
	seeds ----------	1,000.00
	herbicides ----------	2,000.00
	fertilizers ----------	2,000.00
	other field supplies ----------	2,000.00
	office supplies ----------	500.00
III.	Tools and equipment (includes a tractor mounted side clipper) ----------	6,000.00
IV.	Other expenses	
	Travel ----------	500.00
	Sundry (contract for land preparation, weeding harvesting) ----------	8,000.00
		P25,000.00
Total amount for Two Farms ----------		P50,000.00

Breakdown of Expenses:

V. Seed Production Scheme with Farmer Cooperators

I.	Wages	₱ 800
II.	Supplies	
	seeds	5,000
	fungicides, insecticides	500
	other supplies	700
III.	Equipment	none
IV.	Other expenses	
	Travel	2,500
	Miscellaneous (stamps, telegrams, long distance calls, etc.)	500
	T o t a l	₱10,000

Breakdown of Expenses

VI. Administrative Costs

	Amount
One Pasture Specialist, - assist Program Director and help supervise seed production farms and stations	₱ 5,240
One Pasture Specialist - prepare pasture extension leaflets and bullentins - help supervise seed production farms and stations	5,240
Pasture Extension materials	6,000
Travel	10,000
Sundries and Representation Expenses	4,000
T o t a l	₱30,480

PRODUCTION TIMETABLE

I. MAJOR SEED FARMS

Major seed farms will be in Bongabon and Malaybalay Stock Farms.

a. Bongabon Stock Farm -

Covering 2,102 hectares, 388 of which is improved, this farm which is operated by a complement of 46 Bureau of Animal Industry personnel, has two pronounced seasons: One dry, from November to April; the other, wet for the rest of the year. Towards the last half of summer, all grasses are generally dry leaving very little, if any, for the 158 cattle, 24 carabaos and 130 buffaloes to subsist on. For the livestock to live, straw or silage has to be supplied. The ranch cattle nearby usually move to the ricefields to feed on straw.

b. Malaybalay Stock Farm -

This farm has 113-hectare improved pasture out of its total hectarage of 785. The average annual rainfall of about 107.72 inches, more or less evenly distributed throughout the year; low temperature ranging from 29-24.5°C, it being about 2,700 feet above sea level; and vast grasslands make Malaybalay and the nearby land areas suitable to grass and cattle productions. There are 558 cattle handled by nine (9) Bureau of Animal Industry personnel.

Land Preparation, Planting and Harvesting.- In both farms--Bongabon and Malaybalay--6 has. each for Centrosema, Perennial stylo, and Townsville stylo and seven (7) for Siratro shall be planted. This will make a total of 25 has. for each farm or 50 for the two.

For Bongabon, land preparation (twice tractor plowing and twice harrowing) to be undertaken on contractual basis shall start in first week of April. Planting shall follow at the onset of rain in May. Within four months—June to September—during which fertilization will be done, enough vegetative materials shall have developed to allow light grazing by cattle. Then allow the plants to recover in preparation for flowering which may start early in October. After four months, that is on February, harvesting shall begin.

The legumes and acreage planted for Bongabon shall apply to Malaybalay. Land preparation and the rest of the operations attendant to the seed production phase may,

however, he carried out early in February where there is less rain. As earlier stated, there is more or less even distribution of rainfall in the region.

Out of the 50 has. to be planted to legumes in the two major farms, 17.3 tons of seeds enough to plant 2,260 hectares of pasture shall be expected.

II. PASTURE GRASS MULTIPLICATION CENTERS

Based on geographical distribution and available resources, the centers selected for this purpose are:

1. La Mesa Dam Forage Project, Caloocan City
2. Isabela Breeding Station, Gamu, Isabela
3. Zambales Breeding Station, San Marcelino, Zambales
4. Sorsogon Breeding Station, Sorsogon, Sorsogon
5. Dumarao Stock Farm, Dumarao, Capiz
6. La Carlota Stock Farm, La Carlota City (Negros Occ.)
7. Milagros Stock Farm, Milagros, Masbate
8. Ubay Stock Farm, Ubay, Bohol
9. Malaybalay Stock Farm, Malaybalay, Bukidnon
10. Bongabon Stock Farm, Palayan City (Nueva Ecija)

1. La Mesa Dam Forage Project - The project site belongs to the NAWASA. It is within a pronounced six (6) months dry and six (6) months wet seasons. Through a Memorandum of Understanding, the Bureau of Animal Industry is allowed free use of about 100 hectares for the cultivation of forage grasses. So far, 26 hectares worked on by nine (9) Bureau of Animal Industry personnel is planted to different forage species, the produce of which is fed to Bureau cattle around Manila. Large quantity of planting materials are channelled to bureau stations for expanding forage projects. Interested livestock raisers also avail themselves of planting materials with which to develop their pastures.

2. Isabela Breeding Station - This is a 60-hectare reservation with a short dry season lasting only from one to three (3) months. The 12-ha. improved pasture is quite inadequate to maintain the present stock of 75 cattle. Grasses hardly had time to recover from over-grazing. There are eight (8) Bureau of Animal Industry personnel in said station.

3. Zambales Breeding Station - This station has 50 has. of poor, flat and sandy soil adjoining the river bed of Zambales. Within a pronounced dry and wet season zones, this station has 25 has. previously planted to grasses. During summer, there is hardly any grass other than matured "talahib" left for cattle.

4. Sorsogon Breeding Station - The land in this station of 78 hectares is fertile. There is no dry season in the locality, with maximum rain period very pronounced from November to January. Vegetations are green throughout the year.

5. Dumarao Stock Farm - This farm of five (5) personnel has 500 hectares of hilly and rolling pasture lands. Seasons are not pronounced: relatively dry, from November to April; and wet, during the rest of the year. Abundance of ginger-like, rhizome-producing indigenous plant, almost impossible to eradicate, poses a very serious problem to pasture development, 163 hectares of previously improved area being heavily infested with such a plant specie. The land is poor.

6. La Carlota Stock Farm - This is a reservation consisting of 98 hectares of fertile soil. There are two (2) pronounced seasons: one, dry from November to April; and wet during the rest of the year. Although 74 hectares have earlier been developed, over-grazing and pasture mismanagement have favored luxuriant weed-growth and the increase of madre-de-cacao trees. There are seventy-one (71) cattle handled by five (5) Bureau of Animal Industry personnel.

7. Milagros Stock Farm - Milagros Stock Farm is 1,998 hectares of rolling cogonal land. Seasons are not very pronounced: dry, season lasting only for one to three months-February to April. The grass produced from the improved 80 hectares is barely enough for 231 head, leaving very little planting materials to give away to Masbate Ranchers to improve their pastures.

8. Ubay Stock Farm - This farm has an area of 3,000 hectare of rolling cogonal land, 170 of which is improved. The seasons in this area are not pronounced, with very short dry season lasting only from one to three (3) months-February to April. The farm with five (5) Bureau of Animal Industry personnel has an animal population of 251 cattle and 112 Cambodian carabaos.

9 & 10. Bongabon and Malaybalay Stock Farms - These are briefly discussed under major seed farms.

Land Preparation, Planting and Harvesting -

The centers will not only be used for grass multiplication but also for small-scale seed production. The idea is to permit collection of informative data on the ecology of legumes under different localities and conditions. Each center will plant one (1) hectare each of Napier grass, Guinea grass, Para grass

and Stargrass; and 1/5 hectare each of Centrosema, Perennial stylo, Townsville stylo and Siratro.

In all areas where pronounced dry season prevail from November to April, or nearly so, as in the case of La Mesa Dam, Isabela, Zambales, Dumarao, La Carlota, Milagros and Ubay timetable of seed production operations described for Bongabon shall apply.

In Sorsogon where there is no dry season but with a maximum rain period from November to January, land preparation may be started in April when less rain prevails up to May.

The expected materials to be produced out of the 10 grass multiplication centers covering 40 hectares will amount to 3,200 tons, sufficient to plant 800 hectares at a planting rate of 3-5 tons (ave., 4 tons) per hectare.

Out of the 8 hectares planted to legumes in the ten (10) centers at 0.2 has. each, there will be expected 2.8 tons sufficient to improve 334 hectares at a seeding rate of 6-10 kg. per hectare.

The major seed farms, grass multiplication centers, legume seeds/ grasses to plant, expected yields approximate area to plant said yields, and fund requirements are shown in Table I, attached.

Disposition of Planting Materials -

A part of the program of seed and grass production is a small-scale seed buying. These and the seeds produced in major seed farms and the ten (10) Bureau of Animal Industry centers shall be packed into cartons similar to rice and soybean minikits together with instructions on how to plant and care for these crops for sale to ranchers at production cost.

LEGUME SEEDS AND PASTURE GRASS PRODUCTION PROGRAM
FY 1971

TABLE I. Seed Farms, Grass Multiplication Centers, Forage to Plant, Yield, Etc.

Seed Farms/Grass Multiplication Centers	Legume Seed /Grass to Plant	Area to be Planted (Ha.)	Seedling/ Planting Rate/Ha.	Expected Seed/ Grass Yield (Tons)	Approximate Area to plant the yield (Ha.)	Fund Requirements
SEED FARMS -- 2	LEGUMES 1/	50.0		17.80	2,260	₱50,000
1. Bongabon SF	Centrosema	6.0	10 Kg.	3.00	300	
2. Malaybalay SF	Peren. stylo	6.0	5 "	1.20	240	
	Townsv. "	6.0	5 "	1.20	240	
	Siratro	7.0	10 "	3.50	350	
GRASS MULTIPLICATION CENTERS 2/ - 10	LEGUMES 3/	8.0		2.80	334	₱ 8,000
1. La Mesa Dam	Centrosema	0.20	10 Kg.	0.10	10.0	
2. Isabela BS	Peren. stylo	0.20	6 "	0.04	6.7	
3. Zambales BS	Townsv. "	0.20	6 "	0.04	6.7	
4. Sorsogon BS	Siratro	0.20	10 "	0.10	10.0	
5. Dumarao SF			Total Seed	- 20.60		
6. La Carlota SF						
7. Milagros SF	GRASSES 3/	40.0		3,200	800	₱40,000
8. Bongabon SF						
9. Malaybalay SF	Napier	1.0	4* Tons	80.00	20	
10. Ubay SF	Guinea	1.0	4 "	80.00	20	
	Para	1.0	4 "	80.00	20	
	Stargrass	1.0	4 "	80.00	20	
	T o t a l	98.0		3,200	3,006	₱98,000

1/ To be planted in each of two seed farms
2/ To serve also as legume seed production centers
3/ To be planted in each 10 Grass Multiplication Centers
* Range, 3-5 tons/ha.

Yield:

Centro., Siratro - - - - - - - - - - - - - - -	500 kg./ha.
Peren. stylo, Townsv. - - - - - - - - - - -	200 kg./ha
Grasses - - - - - - - - - - - - - - - - - - -	80 tons/ha.

B. Allotment for each seed farm, ₱25,000;
each grass multiplication center. ₱4.800.

Appendix D. - PNR (MRR) FREIGHT CHARGES OF LIVESTOCK AND POULTRY PRODUCTS FROM VARIOUS POINTS TO MANILA

CARGO	ORIGIN					FREIGHT	REMARKS
	ALBAY			CAMARINES SUR			
	Legaspi	Camalig	Ligao	Libmanan	Ragay		
I. LIVESTOCK (Per Head)							MRR EXPRESS TARIFF 12-A
a. Cattle & Carabao	P20.45	P19.90	P19.60	P17.15	P16.05	EXPRESS	
b. Sheep and Goat	6.80	6.65	6.55	5.70	5.35	EXPRESS	-do-
c. Pigs	6.80	6.65	6.55	5.70	5.35	EXPRESS	-do-
d. Poultry	8.40	8.15	8.00	7.00	6.50	EXPRESS	MRR Supplement
per standard	11.60	11.20	11.05	9.70	9.05	EXPRESS	# 20 Freight
Coop	6.65	6.55	6.35	5.45	5.20	EXPRESS	Classification 12-B
II. PERISHABLE (per ton)							
a. Meat (Fresh) per ton:	48.75	47.75	47.45	40.85	38.20	EXPRESS	1st Class
b. Milk (Fresh) per ton:	48.75	47.75	47.45	40.85	38.20	EXPRESS	Double Charge
c. Eggs per ton:	24.40	23.80	23.40	20.45	19.10	ORDINARY	L C L
per ton:	34.15	33.45	32.75	28.60	26.75	ORDINARY	C L
III. NON PERISHABLE (per ton:							
a. Hide (Salted)	19.00	18.65	18.25	15.95	14.90	8th Class	

NOTE: L C L - Less Car Load when loaded on Express plus 100%

C L - Car Load when loaded on Express plus 1.5%

Appendix D. - PNR (MRR) FREIGHT CHARGES OF LIVESTOCK AND POULTRY PRODUCTS FROM VARIOUS POINTS TO MANILA

(Cont'd)

CARGO	ORIGIN			FREIGHT	REMARKS
	QUEZON		LAGUNA		
	Tagcawayan	Lucena	San Pablo		
I. LIVESTOCK (Per Head)					MRR EXPRESS TARIFF 12-A
a. Cattle & Carabao	₱14.80	₱ 9.55	₱ 7.45	EXPRESS	
b. Sheep and Goat	4.95	3.20	2.50	EXPRESS	-do-
c. Pigs	4.95	3.20	2.50	EXPRESS	-do-
d. Poultry	6.00	3.90	3.05	EXPRESS	MRR Supplement
Per standard	8.30	5.35	4.20	EXPRESS	# 20 Freight
Coop	4.75	3.10	2.40	EXPRESS	Classification 11-E
II. PERISHABLE (Per ton)					
a. Meat (Fresh) per ton	35.50	22.40	17.85	EXPRESS	1st Class
b. Milk (Fresh) per ton	35.50	22.40	17.85	EXPRESS	Double Charge
c. Eggs per ton	17.75	11.20	8.90	ORDINARY	L C L
per ton	24.85	15.70	12.50	ORDINARY	C L
III. NON PERISHABLE (per ton)					
a. Hide (Salted)	13.85	8.75	6.95	8th Class	

NOTE: L C L - Less Car Load when loaded on Express plus 100%

C L - Car Load when loaded on Express plus 1.5%

Appendix D. (cont'd) PNR (MRR) FREIGHT CHARGES OF LIVESTOCK AND POULTRY PRODUCTS FROM VARIOUS POINTS TO MANILA

C A R G O	O R I G I N				FREIGHT	R E M A R K S
	LA UNION		PANGASINAN			
	San Vernando	Bawang	Dagupan	San Carlos		
I. Livestock (per head)						
a. Cattle and Carabao	₱ 14.45	₱ 14.10	₱ 12.00	₱ 11.00	EXPRESS	MRR EXPRESS TARIFF 12-A
b. Sheep and Goat	4.80	4.70	4.00	3.85	EXPRESS	-do-
c. Pigs	4.80	4.70	4.00	3.85	EXPRESS	-do-
d. Poultry -	5.90	5.70	4.90	4.75	EXPRESS	MRR Supplement
Per Standard	8.15	7.95	6.75	6.55	EXPRESS	# 20 A Freight
Coop	4.60	4.55	3.85	3.70	EXPRESS	Classification 11-E
II. Perisheable (per ton)						
a. Meat (fresh)	34.70	33.85	28.30	27.35	EXPRESS	1st Class
b. Milk (fresh)	34.70	33.85	28.30	27.35	EXPRESS	Double Charge
c. Eggs	24.30	23.70	19.85	19.15	ORDINARY	L C L
	17.35	16.95	14.15	13.70	ORDINARY	C L
III. Non Perisheable						
a. Hide (Salted)	13.55	13.20	11.05	10.65	8th Class	

NOTE: - L C L - Less Car Load when loaded on express plus 100% sur-charge
C L - Car Load when loaded on express plus 1.5% sur-charge

Appendix D. (cont'd) PER (MRR) FREIGHT CHARGES OF LIVESTOCK AND POULTRY PRODUCTS FROM VARIOUS POINTS TO MANILA

CARGO	ORIGIN				FREIGHT	REMARKS
	Tarlac	Pampanga		Bulacan		
	Tarlac	Angeles City	San Fernando	Malolos		
I. Livestock (per head)						
a. Cattle and Carabao	₱ 8.70	₱ 7.00	₱ 6.55	₱ 5.70	EXPRESS	MRR EXPRESS TARIFF 12-A
b. Sheep and Goat	2.90	2.35	2.20	1.90	EXPRESS	-do-
c. Pigs	2.90	2.35	2.20	1.90	EXPRESS	-do-
d. Poultry -	3.60	2.85	2.75	2.30	EXPRESS	MRR Supplement
Per Standard	4.95	3.90	3.80	3.15	EXPRESS	# 20A Freight
Coop	2.80	2.25	2.15	1.70	EXPRESS	Classification 11-E
II. Perisheable (per ton)						
a. Meat (fresh)	20.90	16.80	15.25	12.60	EXPRESS	1st Class
b. Milk (fresh)	20.90	16.80	15.25	12.60	EXPRESS	Double Charge
c. Eggs	14.65	11.80	10.70	8.85	ORDINARY	L C L
	10.45	8.40	7.65	6.30	ORDINARY	C L
III. Non Perisheable						
a. Hide (Salted)	8.15	6.55	5.95	4.90	8th Class	C L only

NOTE: - L C L - Less Car Load when loaded on express plus 100% sur-charge.

C L - Car Load when loaded on express plus 1.5% sur-charge

APPENDIX E

LIST OF LIVESTOCK-POULTRY COOPERATIVES AFFILIATED WITH ACA*

Region & Province	Operational Status	Membership		Capitalization	
		Inactive	Active	Authorized	Paid-Up
				(Thousand Pesos)	
Region I					
Benguet					
1. Baguio Urban Suburban Rabbit Raisers	Active		22	₱ 20.00	₱ 1.2
2. Tarlac					
1. Concepcion Poultry & Livestock	Inactive		15	125.00	56.34
2. Tarlac Livestock & Poultry Procoma	Active	18		500.00	27.70
Region II					
Isabela					
1. San Mateo Poultry & Livestock	Inactive	20		19.00	1.00
Nueva Vizcaya					
1. Dupax Coop. Assn.	Active		36	50.00	7.33
Region III					
Batangas					
1. Alitagtag Agricoma	Inactive	89		100.00	6.40
2. Ibaan Poultry & Livestock	Inactive	93		100.00	5.66
3. Janopol Agricoma	Active		417	50.00	16.03
4. Lodlod Agricoma	Active		176	100.00	18.08
5. Paharang Agricoma	Active		256	50.00	26.65
6. Malipernio	Active		77	100.00	8.40
Bulacan					
1. Broiler's Coop. Marketing	Active		43	500.00	200.00
2. Central Poultry & Livestock	Active		26	100.00	25.73
3. Malolos Agricoma	Active		85	100.00	5.20
Cavite					
1. Imus Swine/Poultry	Active	19	58	100.00	12.17

*Data as of September, 1970.

Laguna					
1. Los Baños Poultry & Livestock	Inactive	200		₱ 100.00	₱ 11.19
2. Masagana Poultry & Livestock	Inactive	158		40.00	23.80
3. Sta. Rosa Poultry & Livestock	Inactive	117		50.00	4.31
Manila					
1. NAPOLCA	Inactive	1,063		200.00	42.54
Nueva Ecija					
1. Jaen Poultry & Livestock PROCOMA	Active		23	50.00	2.20
2. Sta. Rosa Poultry & Livestock	Active		36	40.00	4.20
Pampanga					
1. Floridablanca Poultry & Livestock	Active	10	44	100.00	5.00
Rizal					
1. Rizal Livestock Procoma	Inactive	20		1,000.00	207.60
2. Marikina Swine & Poultry	Inactive	20		100.00	5.10
3. Pateros Duck Raisers	Inactive	229		10.00	.70
4. Rizal Duck	Active		72	100.00	5.05
5. San Mateo Poultry & Livestock	Active		40	100.00	42.19
6. Greater Manila Hog Raisers Association	Active		15	1,000.00	40.00
Quezon					
1. Lucena City Poultry & Livestock	Active		28	100.00	5.20
Region V					
Negros Occidental					
1. Negros Procoma	Active		120	1,250.00	68.11
2. Phil. Poultry & Livestock	Active	215	11	500.00	174.00
3. Visayan Livestock & Poultry	Inactive	50		127.50	5.10
Region VIII					
Misamis Oriental					
1. Misamis Oriental Bukidnon Cattle PROCOMA	Active		30	200.00	10.00
T o t a l		2,318	1,564	₱7,077.50	₱ 1,074.18